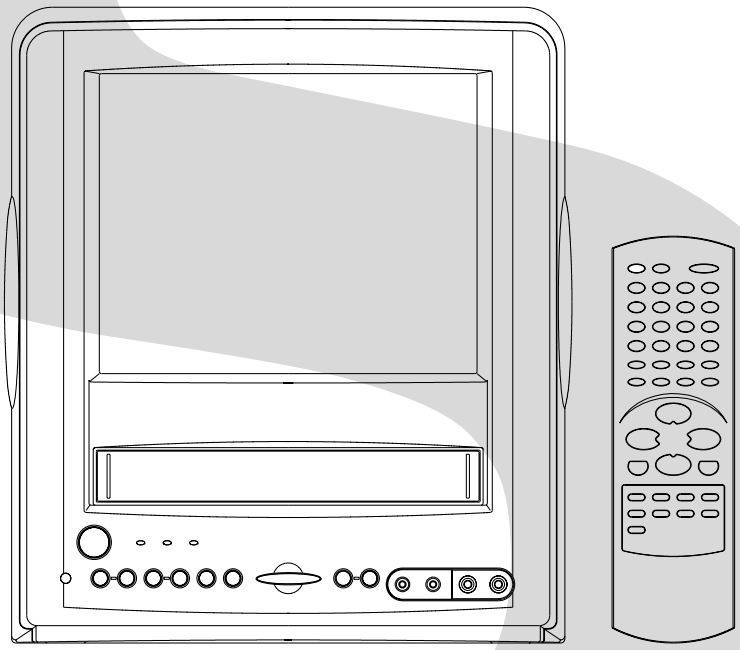
TOSHIBA

FILE NO. 140-200118

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER

MV9DL2



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

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GENERAL SPECIFICATIONS

G-1	**TV System**	CRT	CRT Size / Visual Size		9 inch / 222.8mmV
			CRT Type		Normal
			Deflection		90 degree
			Magnetic Field BV/BH		+0.45G / 0.18G
		Color System			NTSC
		Speaker			1Speaker
			Position		Side
			Size		3 Inch
			Impedance		8 ohm
		Sound Output	MAX		1.2 W
			10%(Typical)		0.8 W
G-2	**VCR System**	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			No
		NTSC PB			-
		Deck	DECK		OVD-6S
			Loading System		Front
			Motor		3
		Heads	Video Head		2 Head
			FM Audio Head		No
			Audio /Control		Mono
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec PAL		-
			Rec NTSC		SP/SLP
			Play PAL		-
			Play NTSC		SP/SLP
		Fast Forward / Rewind Time (Approx.)			FF:4'50"/REW:2'30" at T-120
		Forward/Reverse Picture Search	NTSC or PAL-M		SP/SLP=3x,5x/9x,15x
		Frame Advance	Slow		-
		Slow Speed	Variable Slow		-
G-3	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		USA/CANADA+CATV
			Tuning System		F-Synth
			Input Impedance		VHF/UHF 75 ohm
			CH Coverage		2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84
		Intermediate Frequency	Picture(FP)		45.75MHz
			Sound(FS)		41.25MHz
			FP-FS		4.5MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
G-4	**Signal**	Video Signal	Input Level		1 V p-p/75 ohm
			Output Level		1 V p-p/75 ohm
			S/N Ratio (Weighted)		50 dB
			Horizontal Resolution at SP Mode		230Lines
		Audio Signal	Input Level		-8dB/50Kohm
			Output Level		-8dB/ 1Kohm
			S/N Ratio at SP		38
			Harmonic Distortion (1KHz)		1.5
			Frequency Response	at SP	100Hz ~10kHz
				at LP	-
				at SLP	100Hz ~4kHz
		Hi-Fi Audio Signal	Dynamic Range : More than		-
			Wow And Flutter : Less than		-
			Channel Separation : More than		-
			Harmonic Distortion : Less than		-
G-5	**Power**	Power Source	AC		120V 60Hz
			DC		12V
		Power Consumption		at AC	54 W at 120V 60Hz
				at DC	48 W at 12 V
			Stand by (at AC)		5 W at 120V 60 Hz
			Per Year		-
		Protector	Power Fuse		Yes
			Dew Sensor		Yes
G-6	**Regulation**		Safety		UL
			Radiation		FCC
			X-Radiation		DHHS
G-7	**Temperature**		Operation		+5oC ~ +40oC
			Storage		-20oC ~ +60oC
G-8	**Operating Humidity**				Less then 80% RH

GENERAL SPECIFICATIONS

G-9	**On Screen Display**	Menu			Yes		
			Menu	Type	Character		
			Timer Rec Set		Yes		
			Channel Setup		Yes		
				TV/CATV	Yes		
				Auto ch Memory	Yes		
				Add/Delete	Yes		
				Guide ch Set		No	
			TV Setup		Yes		
				V-chip Set	Yes		
				On/Off Timer Set	Yes		
				Picture	Yes		
				Audio		No	
				Sap On/Off		No	
			Auto Repeat On/Off		Yes		
			On/Off Timer Set			No	
			System Setup		Yes		
				Clock Set	Yes (Calendar 12H)		
				Language	Yes		
				Auto Clock On/Off	Yes		
				Standard Time	Yes		
				Daylight Saving Time	Yes		
			Commercial Advance			No	
				Marking On/Off		No	
				Blueback On/Off		No	
				Playback Auto/Manual		No	
				Unmarked Tape		No	
			Movie Advance			No	
				Go To Movie		No	
				Go To Preview		No	
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry				No	
		Clock			Yes		
		CH/AV			Yes		
		Tape Counter(Linear Counter)			Yes		
		Tape Speed			Yes		
		Sleep Time			Yes		
		Stereo/Audio Output				No	
				Bilingal		No	
				SAP		No	
		Control Level	Volume		Yes		
			Bright / Contrast / Sharpness/Color		Yes		
			Tint		Yes		
			Bass/Treble/Balance			No	
			Manual Tracking		Yes		
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Yes		
		Auto Tracking/Manual Tracking			Yes		
		Caption / Text			Yes		
		Index				No	
		Muting			Yes		
		Hi-Fi				No	
		Repeat			Yes		
		Zero Return				No	
		DEW			Yes		
G-10	**OSD Language**				English French Spanish		
			OSD Language Setting		English		
G-11	**Clock,Timer and Timer Back-up**	Calendar			1990/1/1 ~ 2081/12/31		
		Timer Events			8 prog/ 1 month		
		One Touch Recording Max Time			5 Hours		
		OTPB Valid Time			No		
		Sleep Timer		Max Time	120	min.	
				Step	10	min.	
		On/Off Timer		Program(On Tim / Off Tim)	1	prog.	
		Auto Shut Off		No Signal	15	min.	
				No Operation	-		
		Timer Back-up (at Power Off Mode)			5	sec.	

GENERAL SPECIFICATIONS

G-12	**Remote Control**	Unit		RC-DQ
		Glow in Dark Remocon		Yes
		Format		NEC
		Custom Code		40-BF/44-BB h
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		42 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			CH Up	Yes
			CH Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			Input Select	Yes
			Play	Yes
			F.Fwd	Yes
			Rew	Yes
			Pause/Still	Yes
			Stop	Yes
			Rec/OTR	Yes (2Key)
			Eject	Yes
			Counter Reset	Yes
			Speed	Yes
			Timer Rec	Yes(2Key)
			TV Monitor	No
			Quick View	Yes
			Program	Yes
			Slow	No
			Auto Tracking	Yes
			Set/Tracking+	Yes
			Set/ Tracking -	Yes
			Menu	Yes
			Enter	Yes
			Cancel	Yes
			Call	Yes
			TV/Caption/Text	Yes
			Sleep Timer	Yes
			Muting	Yes
			Zero Return	Yes
			CM Skip	Yes
			Audio Select	No
G-13	**Features**	Auto Head Cleaning		Yes
		Auto Tracking		Yes
		HQ (VHS Standard High Quality)		Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject		Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)		No
		Auto Clock		Yes
		Forward / Reverse Picture Search		Yes
		One Touch Playback		No
		Auto CH Memory		Yes
		Closed Caption		Yes
		TV Auto Shut off Function		Yes
		End Call		No
		Index Search		No
		SQPB		No
		CATV		Yes
		CM Skip(30sec x 6 Times)		Yes
		Comb Filter		No
		TV Monitor		No
		Program Extend		No
		Choke Coil		No
		Energy Star		Yes
		Dirty Head		No
		V-chip	USA V-chip	Yes
			CANADA V-chip	No
		CM Advance		No
		Movie Advance		No

GENERAL SPECIFICATIONS

G-14	**Accessories**	Owner's Manual	Language	English	
			w/Guarantee Card	Yes	
		Remote Control Unit		Yes	
		Rod Antenna		Yes	
			Poles	2pole	
			Terminal	F type	
			w/300 ohm to 75 ohm Antenna Adapter	Yes	
		Loop Antenna			No
			Terminal	-	
		U/V Mixer			No
		DC Car Cord (Center+)		Yes	
		Guarantee Card			No
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Facility List			No
		Columbia Offer Sheet			No
		Tent Card			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		Battery		Yes	
			UM size x pcs	UM4 x 2 pcs	
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Registration Card		Yes	
		ESP Card		Yes	
		300 ohm to 75 ohm Antenna Adapter			No
G-15	**Interface**	Switch	Power	Yes	
			Play	Yes	
			Pause/Still		No
			System Select		No
			One Touch Playback		No
			Channel Up	Yes	
			Channel Down	Yes	
			F.FWD/Cue	Yes	
			Eject/Stop	Yes	
			Main Power SW		No
			Volume Up	Yes	
			Volume Down	Yes	
			Rew/Rev	Yes	
			Rec/OTR	Yes	
			Input Select		No
		Indicator	Power	Red	
			Rec/OTR	Red	
			T-Rec	Red	
			On Timer		No
			CS		No
		Key Light up	Rec/OTR		No
			One Touch Playback		No
			Play		No
		Terminals Front	Video Input	RCAx1	
			Audio Input	RCAx1	
			Other Terminal	Head Phone(Stereo & Mono, 3.5mm) x 2	
		Rear	Video Input	RCAx1	
			Audio Input	RCAx1	
			Video Output	RCAx1	
			Audio Output	RCAx1	
			Euro Scart		No
			Diversity		No
			Ext Speaker		No
			DC Jack 12V(Center +)	Yes	
			VHF/UHF Antenna Input	F Type	
			AC Inlet		No
G-16	**Set Size**		Approx. W x D x H (mm)	278 x 306.5 x 311.5	
G-17	**Weight**		Net (Approx.)	8.8 kg	(19.4 lbs)
			Gross (Approx.)	10.5 kg	(23.1 lbs)

GENERAL SPECIFICATIONS

G-18	**Carton**	Master Carton		No
			Content	-
			Material	-
			Dimensions W x D x H(mm)	-
			Description of Origin	-
		Gift Box		Yes
			Material	Double/White CORRUGATED
			Dimensions W x D x H(mm)	338 x 376 x 386
			Design	As per Buyer's
			Description of Origin	Yes
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces
			Height (cm)	62
		Container Stuffing(40' container)		1260 Sets
G-19	**Cabinet Material**		Cabinet Front	PS 94V0 DECABROM
			Cabinet Rear	PS 94V0 DECABROM
			Jack Panel	PS 94V0 DECABROM

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the 2 screws ②.
3. Remove the 2 screws ③ which are used for holding the Back Cabinet.
4. Remove the AC cord from the AC cord hook ④.
5. Remove the Back Cabinet in the direction of arrow.

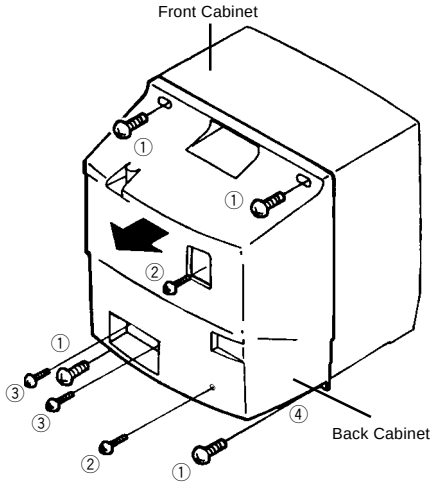


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   (CP801 and CP850).
3. Remove the CRT PCB in the direction of arrow.

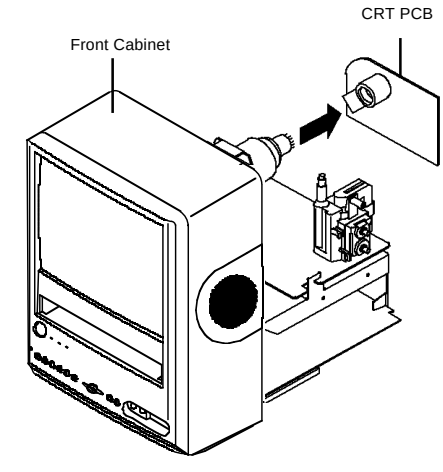


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP353, CP401, CP403 and CP501).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

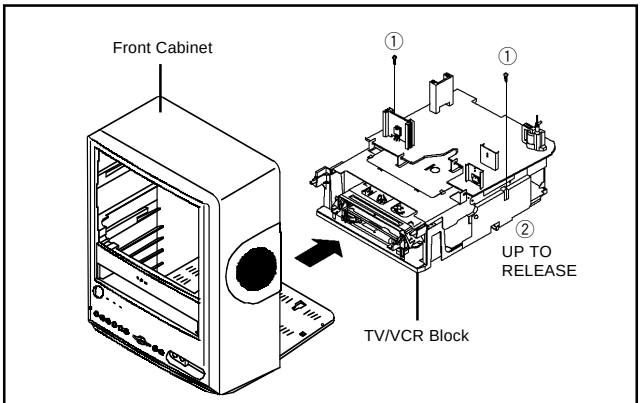


Fig. 1-3

1-4: MAIN PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 2 screws ②.
4. Remove the screw ③.
5. Disconnect the following connectors:
   (CP502 and CP820).
6. Remove the Main PCB in the direction of arrow.

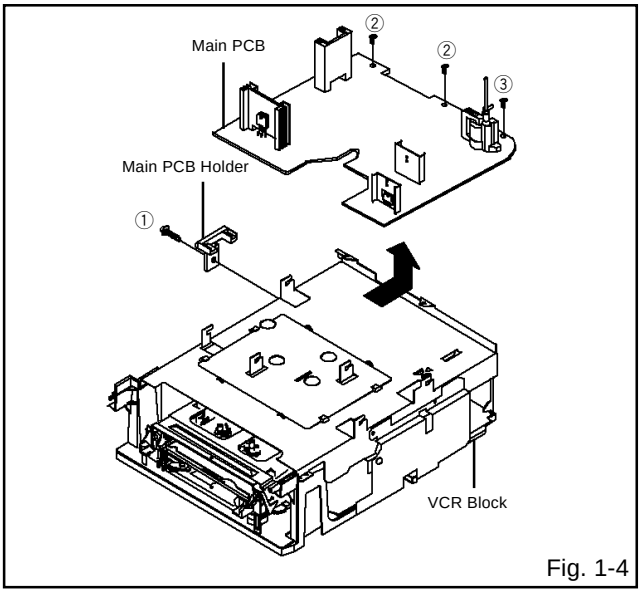


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the screw ②.
3. Remove the Deck Shield Plate in the direction of arrow.

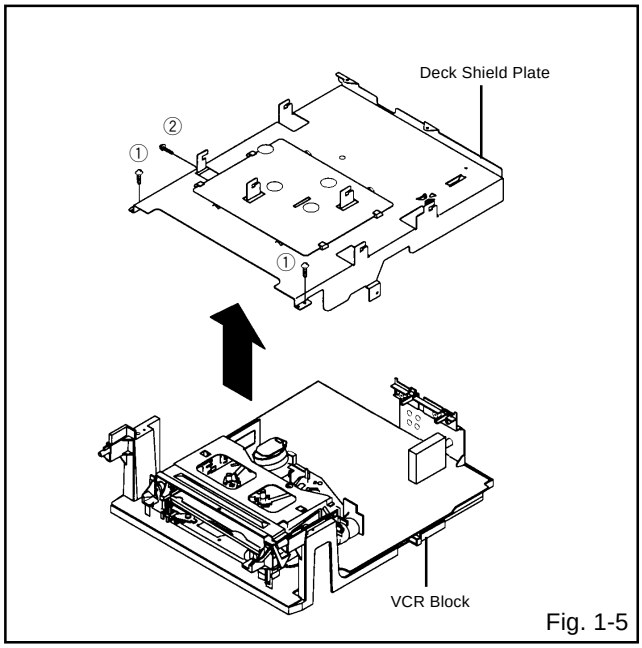


Fig. 1-5

1-6: DECK CHASSIS (Refer to Fig. 1-6)

1. Remove the 3 screws ①.
2. Remove the 2 screws ②.
3. Disconnect the following connectors:
   (CP1001, CP1002, CP4001, CP4002 and CP4003).
   Remove the Deck Chassis and Shield Cover Deck in
4. the direction of arrow.

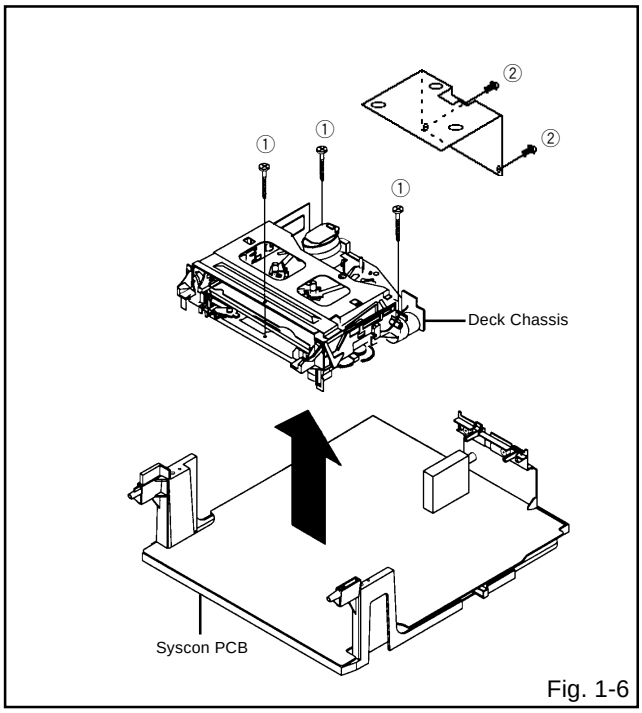


Fig. 1-6

1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the Syscon PCB in the direction of arrow (A).
3. Remove the 2 screws ②.
4. Remove the nut ③.
5. Remove the washer ④.
6. Unlock the 2 supports ⑤.
7. Remove the Jack Plate in the direction of arrow (B).

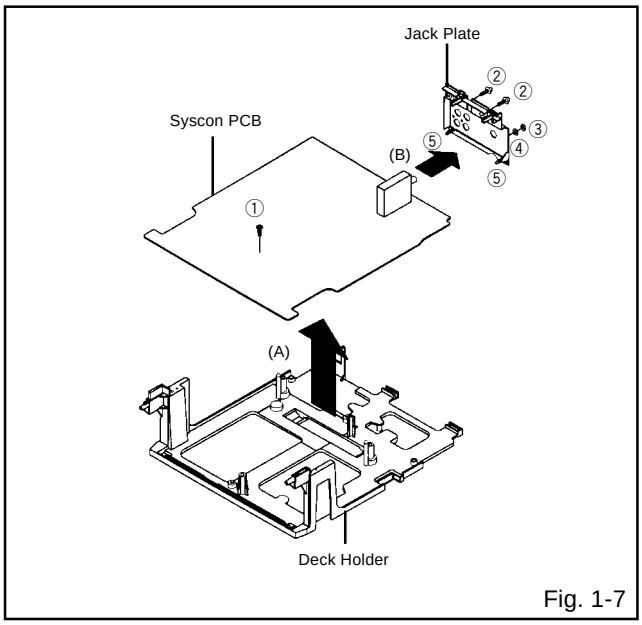


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

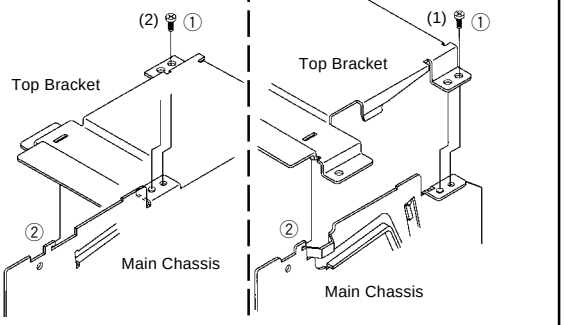
2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-1

2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

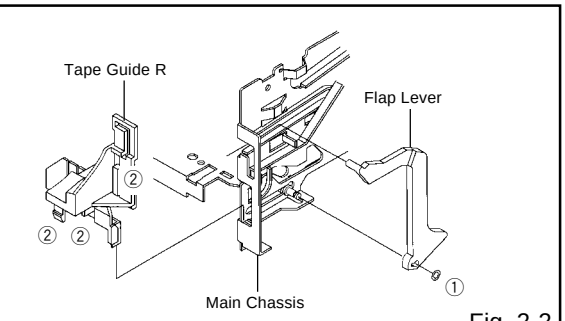
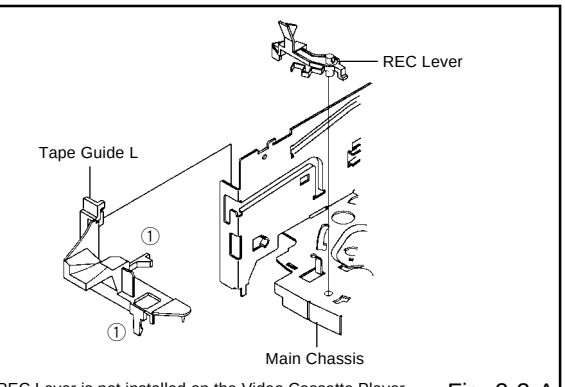


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

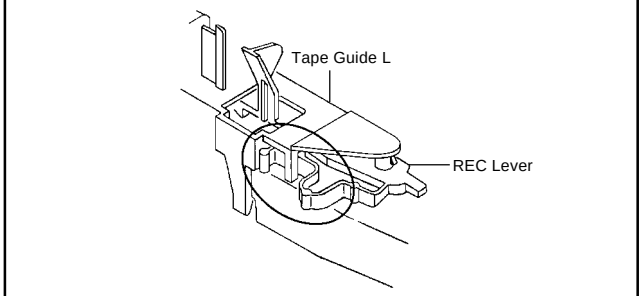


• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. **(Refer to Fig. 2-3-B)**



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side so that the Link Ass'y doesn't slip out.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

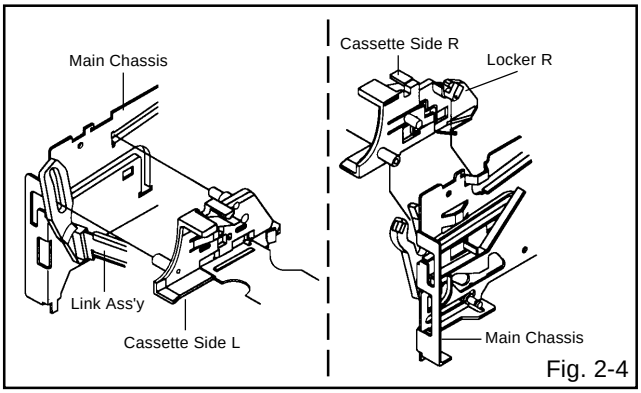


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.
2. Remove the Cassette Earth Spring.

NOTE

1. When you install the Cassette Side R, be sure to move the Locker R after installing.
2. After the installation of the Cassette Holder, then install the Cassette Earth Spring.

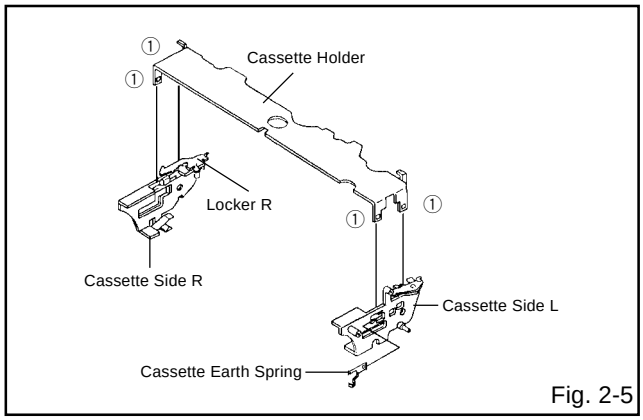


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK UNIT (Refer to Fig. 2-6)

1. Set the Link Unit to the Eject position.
2. Remove the (A) side of the Link Unit first, then remove the (B) side.

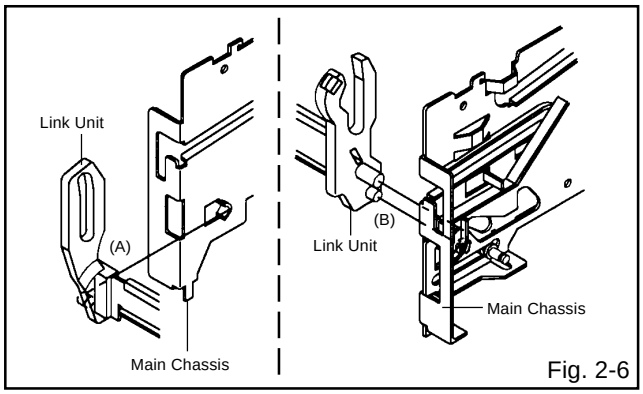


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the screw ①.
3. Remove the Loading Motor Ass'y.

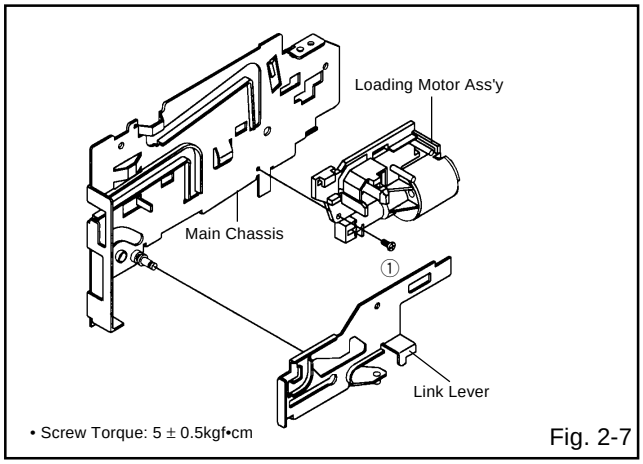


Fig. 2-7

2-8: SENSOR COVER L3 (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L3.

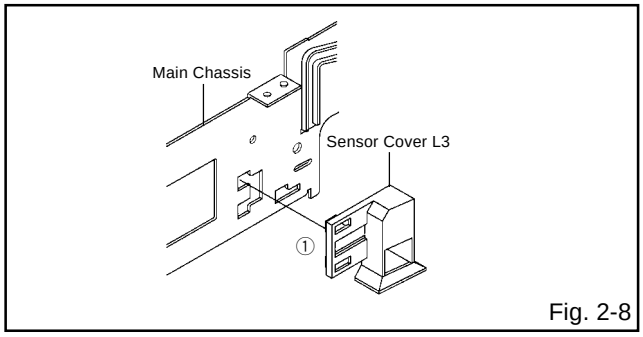


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-B)

1. Turn the Middle Gear clockwise so that the Tension Holder hook, is set to the position of Fig. 2-9-A to more the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Float the hook ③ and turn it clockwise then remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

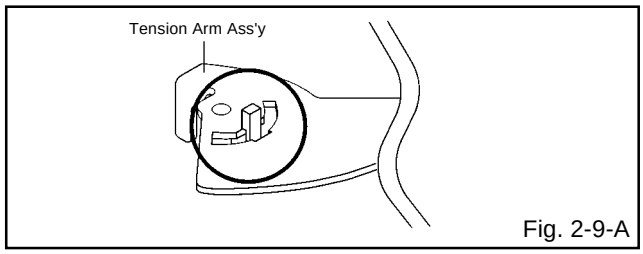


Fig. 2-9-A

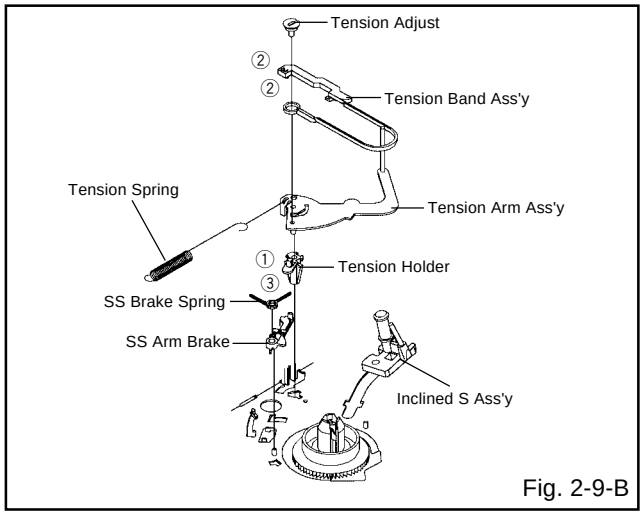


Fig. 2-9-B

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-C. **(Refer to Fig. 2-9-C)**

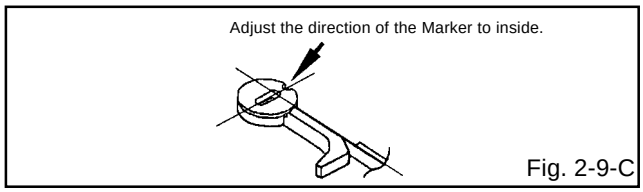


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

1. Remove the T Brake Spring.
2. Turn the T Brake Ass'y clockwise and bend the hook section to remove it.

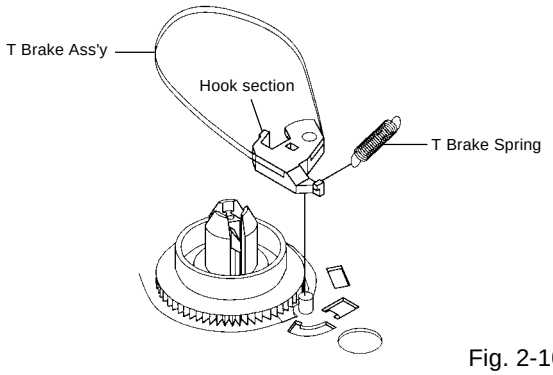


Fig. 2-10

2-11: S REEL/T REEL (Refer to Fig. 2-11)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it. (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

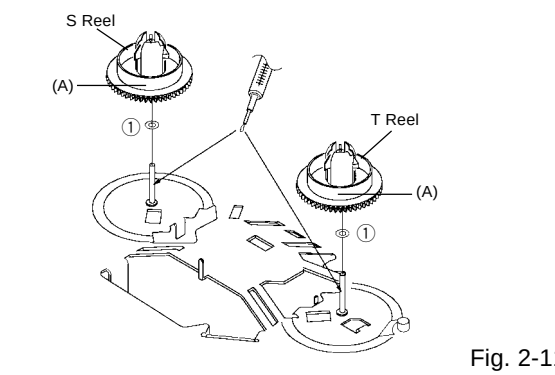
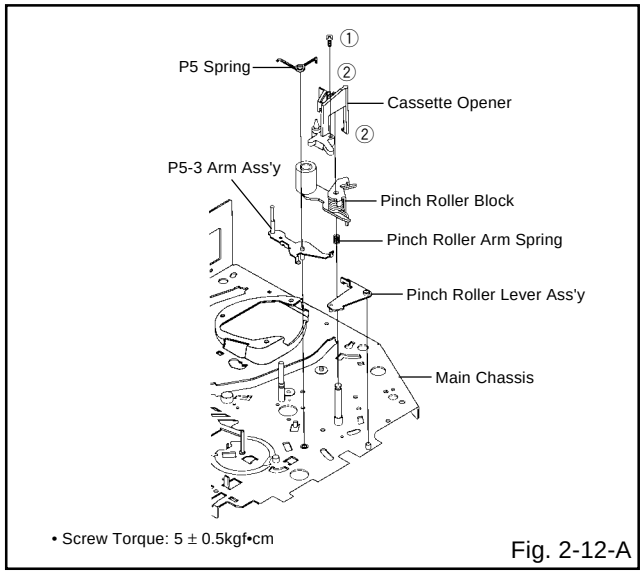


Fig. 2-11

2-12: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-12-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm
Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-12-B. **(Refer to Fig. 2-12-B)**

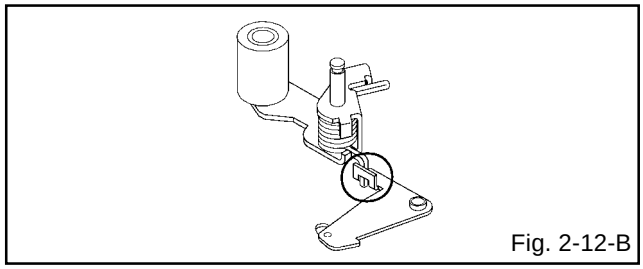


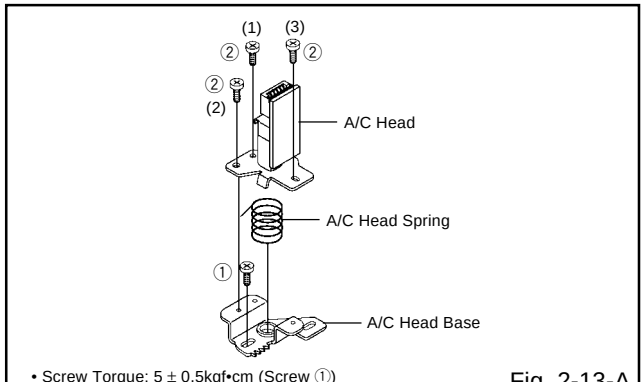
Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)
Fig. 2-13-A

DISASSEMBLY INSTRUCTIONS

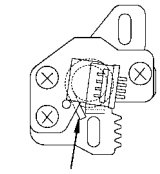
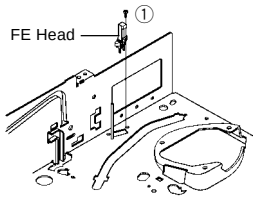


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

1. Remove the screw ①.
2. Remove the FE Head.



• The FE Head is not installed on the Video Cassette Player.
• Screw Torque: 4 ± 0.5kgf•cm

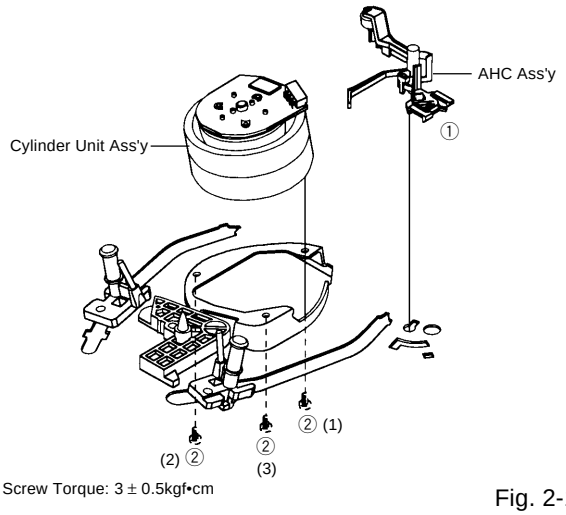
Fig. 2-14

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001).
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

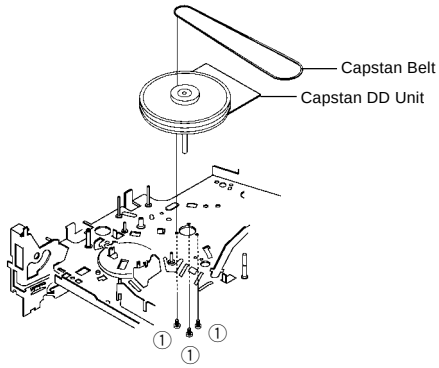


• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam, Pinch Roller Cam and Joint Gear.

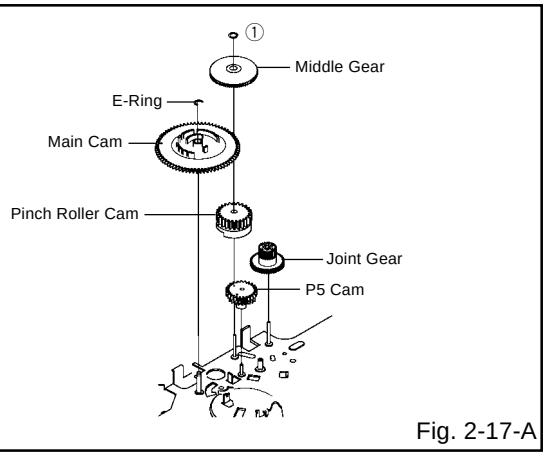


Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

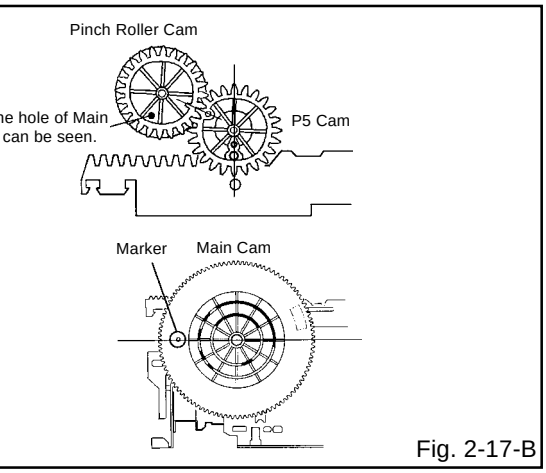


Fig. 2-17-B

DISASSEMBLY INSTRUCTIONS

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

1. Remove the Capstan Brake Spring.
2. Remove the Polyslider Washer ①.
3. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
4. Unlock the 2 supports ② and remove the Clutch Lever.

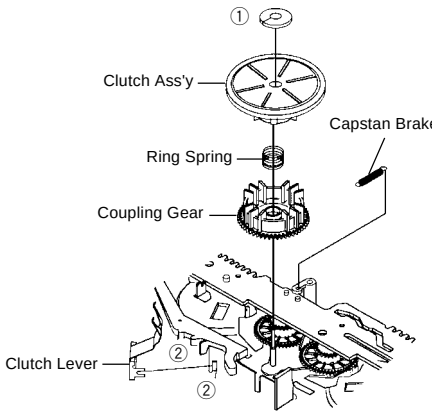


Fig. 2-18

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Slide the Main Rod and remove the Spring Holder.
3. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
4. Remove the screw ②.
5. Remove the LED Reflector.
6. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
7. Remove the Loading Gear S and Loading Gear T.
8. Remove the Loading Gear Spring.

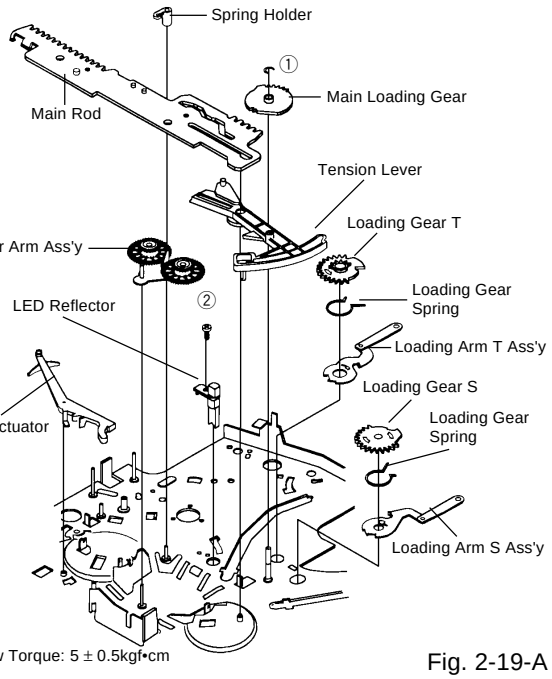


Fig. 2-19-A

NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

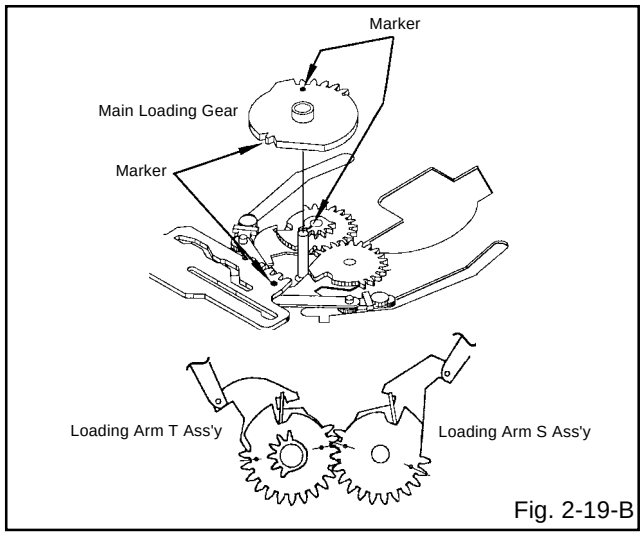


Fig. 2-19-B

2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-19-C. **(Refer to Fig. 2-19-C)**

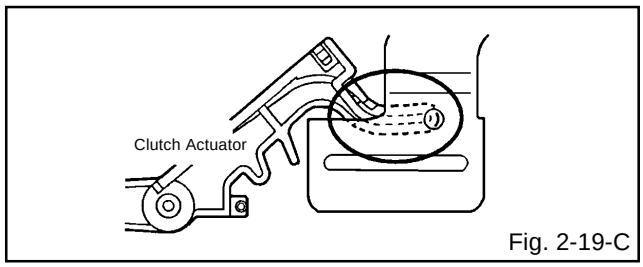


Fig. 2-19-C

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

1. Remove the Cap P4.
2. Remove the screw ①.
3. Unlock the support ② and remove the Loading Gear Holder.
4. Remove the Inclined S Unit.
5. Remove the Inclined T Unit.

NOTE

Do not touch the roller of Guide Roller.

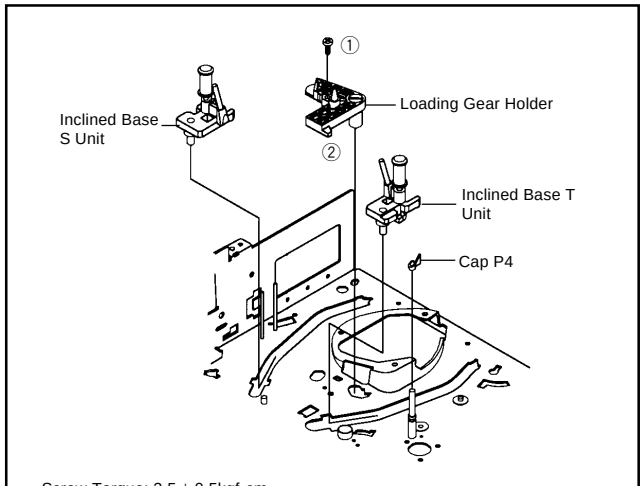


Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

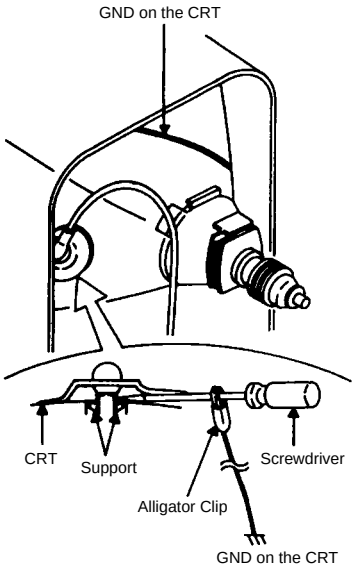


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

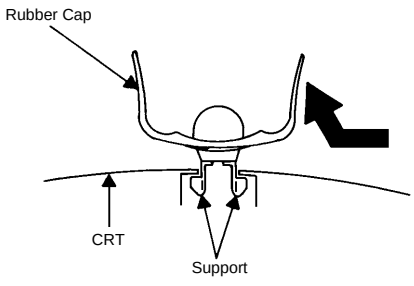


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

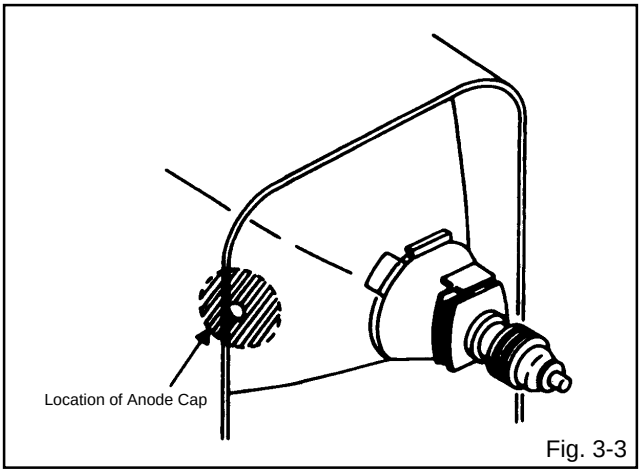


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

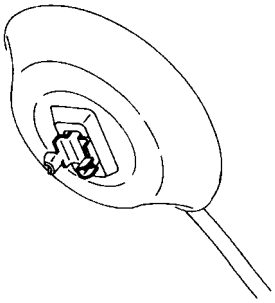


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

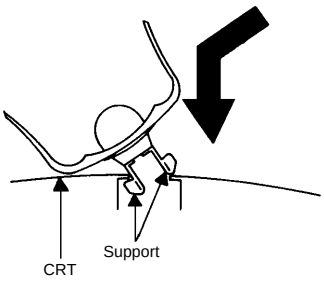


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

4. REMOVAL OF DEFLECTION YOKE

(Refer to Fig. 4-1)

1. Loosen the screw ①.
2. Remove the Convergence • Purity Magnet in the direction of arrow.
3. Remove the 3 Wedges.
4. Remove the Deflection Yoke in the direction of arrow.

INSTALLATION

Install new Deflection Yoke in reverse steps of REMOVAL.

NOTE

After adjusting the purity and the convergence, fix the screw ① and lock the wedges.

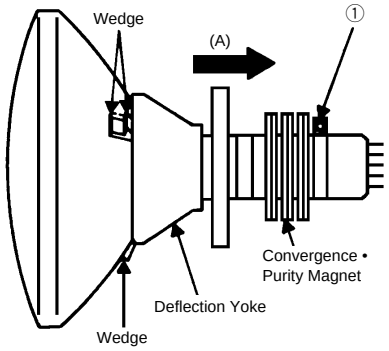


Fig. 4-1

DISASSEMBLY INSTRUCTIONS

5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 5-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

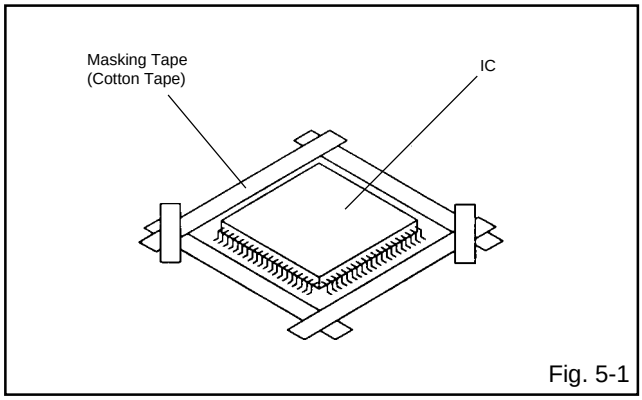


Fig. 5-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 5-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

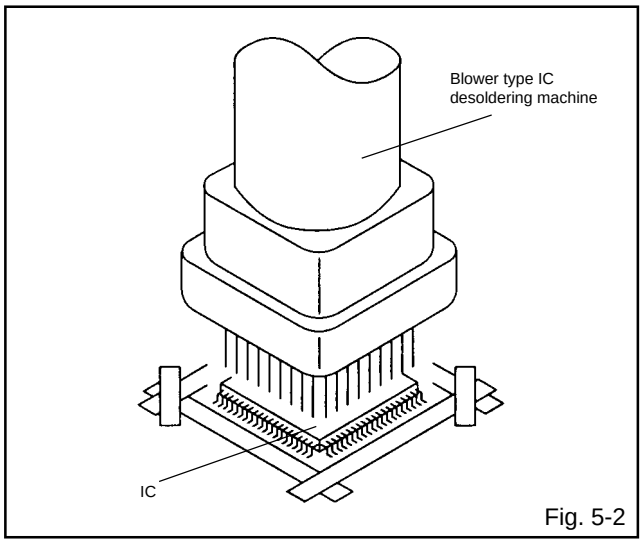


Fig. 5-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 5-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

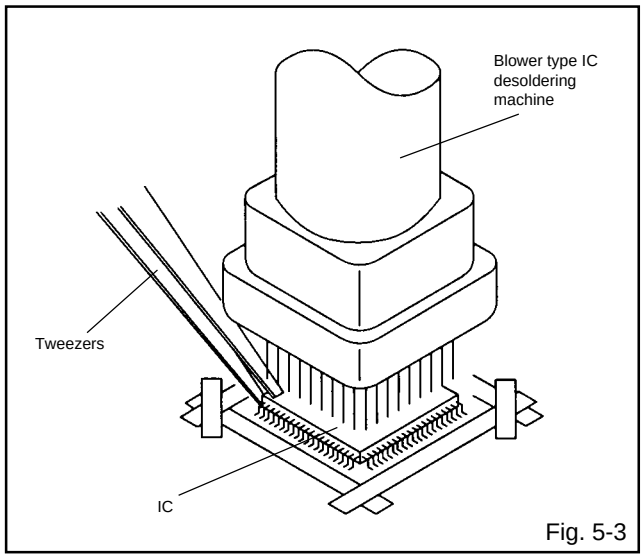


Fig. 5-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 5-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

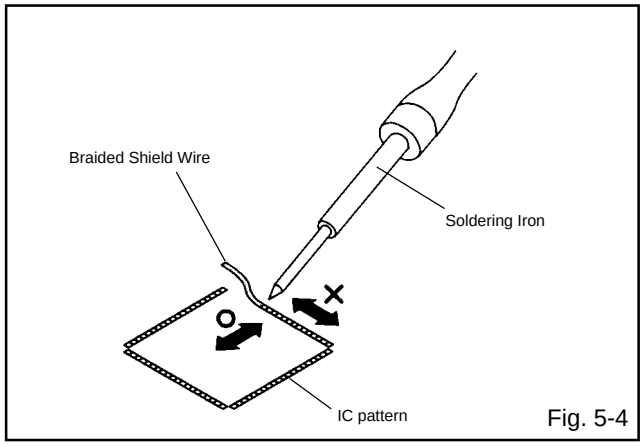


Fig. 5-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 5-5.)**

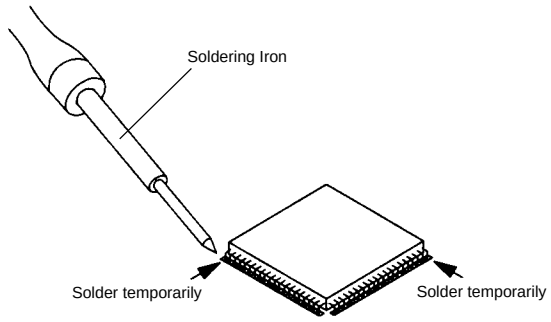


Fig. 5-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**

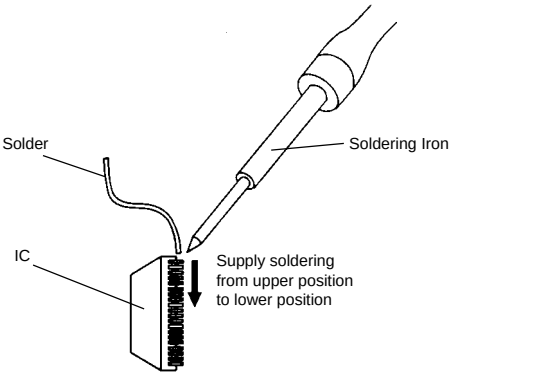


Fig. 5-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

   NOTE

   Do not absorb the solder to excess.

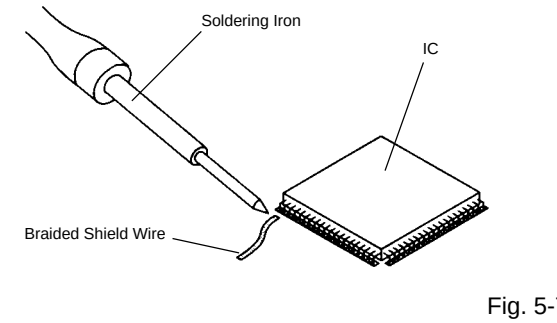


Fig. 5-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**

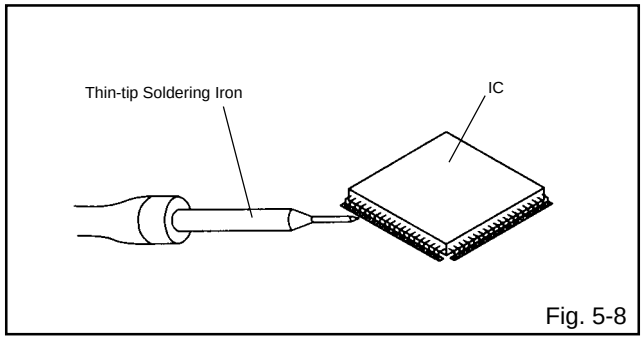


Fig. 5-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

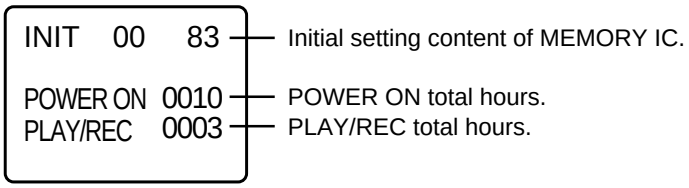
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

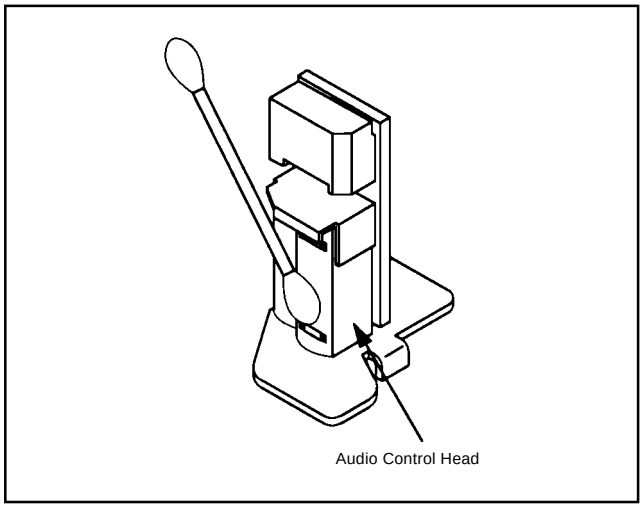
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

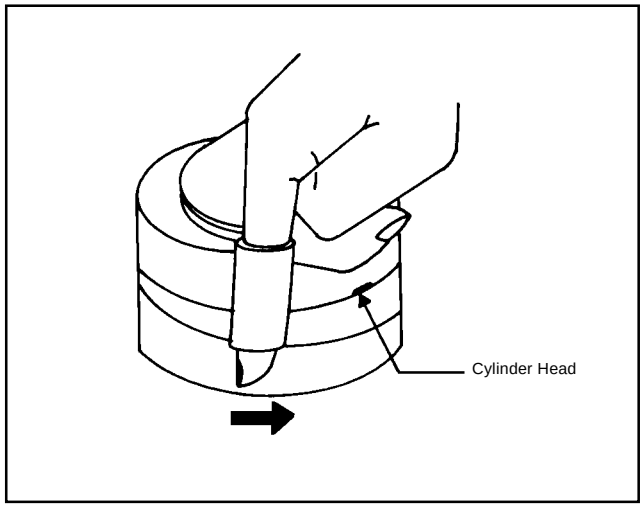
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	62	63	43	14	34	0B	51	3A	10	0C	00	00	00	29
10	B5	9D	94	8E	00	00	30	05	08	00	AC	0F	04	3E	0A	0C
20	06	29	01	15	10	60	32	3A	BA	D7	18	1D	28	2D	2E	2F
30	30	31	33	35	37	39	3B	3D	3F	40	41	42	43	44	45	46
40	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52	53	54	55	56
50	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65	66
60	67	67	68	68	69	69	6A	6A	6B	6B						

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

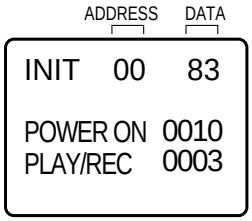
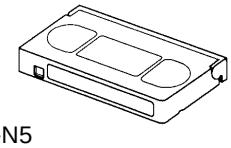
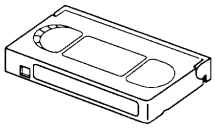
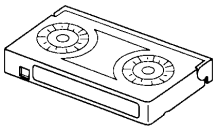
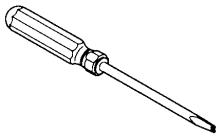
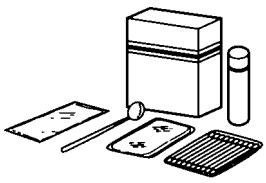
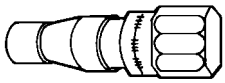
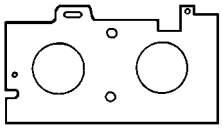
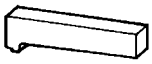
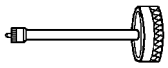
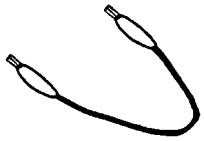
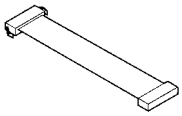
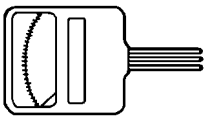


Fig. 1

3. ADDRESS is now selected and should "blink". Using the SET + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using SET + or - button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

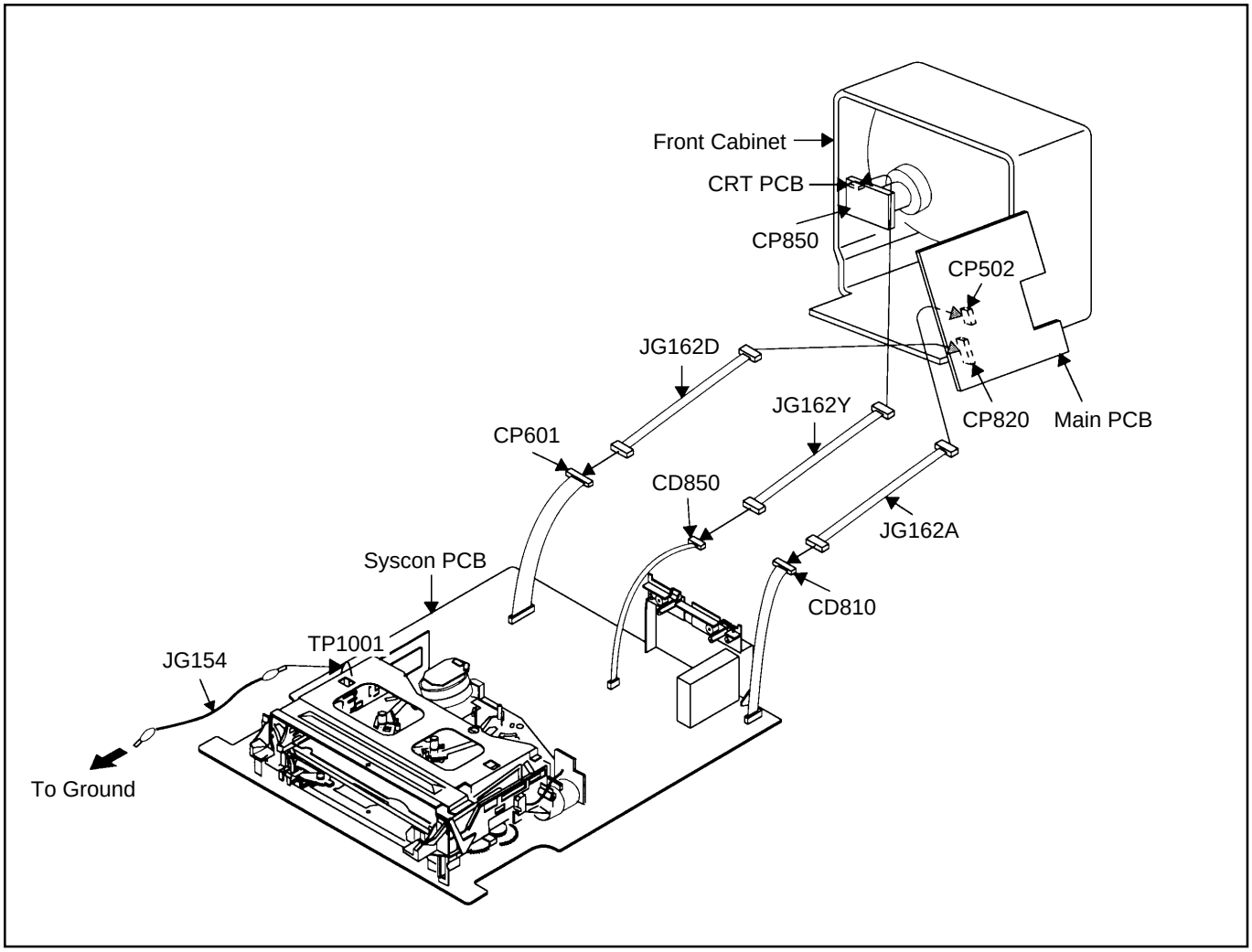
Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
JG162A Cable (8 Pins) JG162D Cable (11 Pins) JG162Y Cable (5 Pins) 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND
JG162A	APJG162A00	Cable	Used to connect the Syscon PCB and Main PCB
JG162D	APJG162D00	Cable	Used to connect the Syscon PCB and Main PCB
JG162Y	APJG162Y00	Cable	Used to connect the Syscon PCB and CRT PCB

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP353, CP502, CP820 and CP850, then remove the VCR Block from the set.
2. Connect as shown in the below figure using the Service Fixture.
   • Connect the Syscon PCB to the Main PCB with the cable JG162A and JG162D.
   • Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (Refer to MAJOR COMPONENTS LOCATION GUIDE)
4. The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.



MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

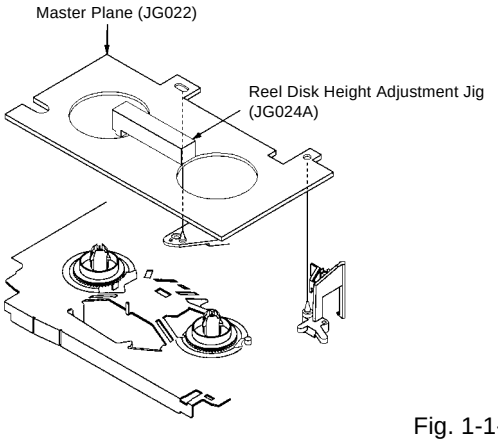


Fig. 1-1-A

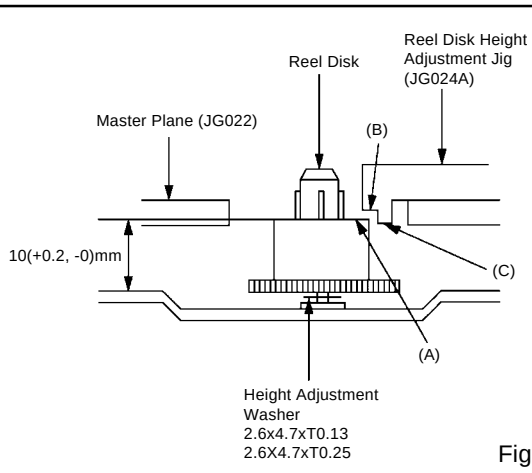


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis.
   After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

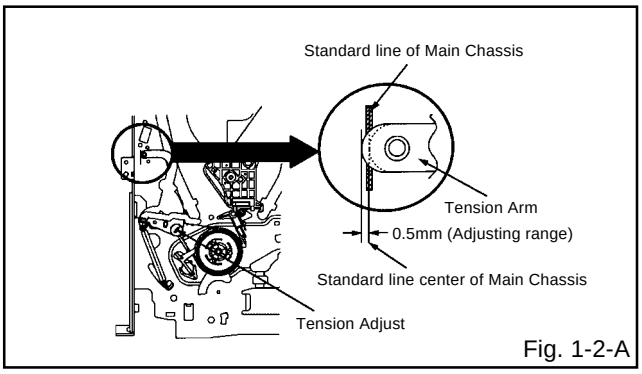


Fig. 1-2-A

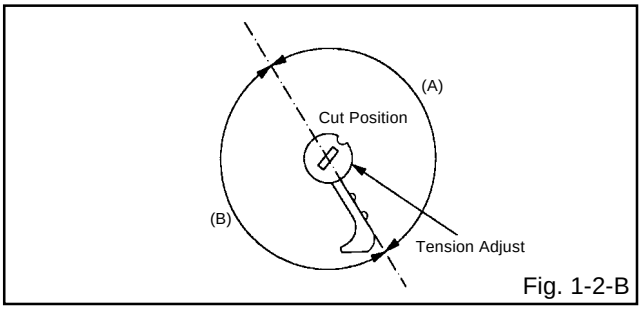


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

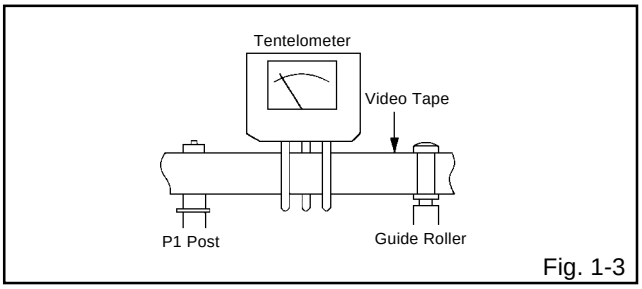


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.

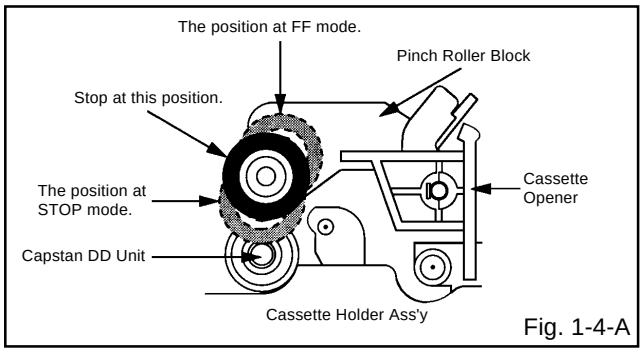


Fig. 1-4-A

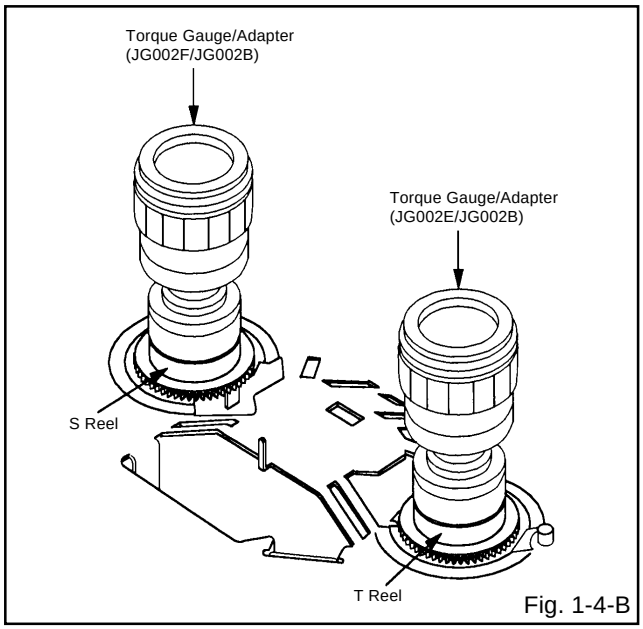


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band Ass'y/ Tension Arm Ass'y T Reel side: T Reel/T Brake Spring/T Brake Ass'y

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

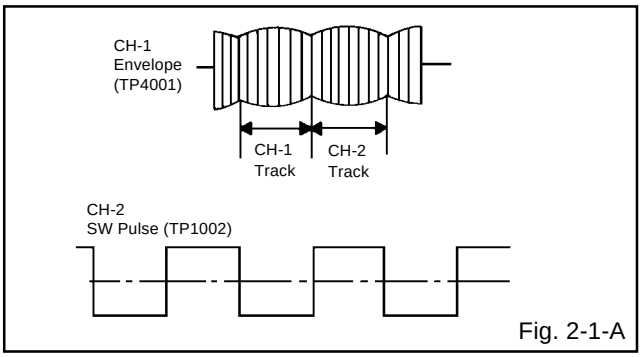


Fig. 2-1-A

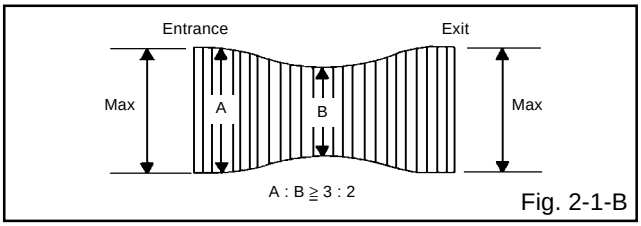


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

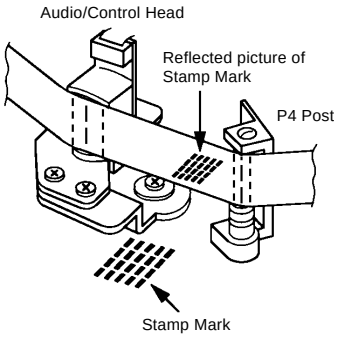


Fig. 2-2-A

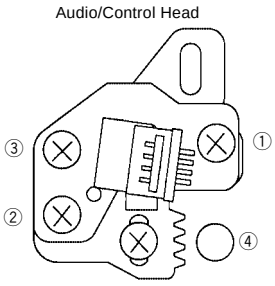


Fig. 2-2-B

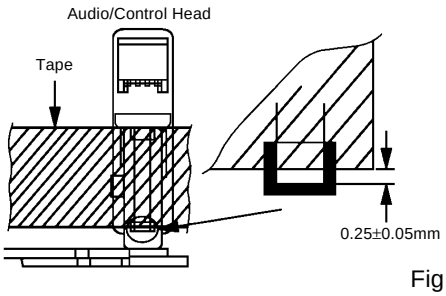


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

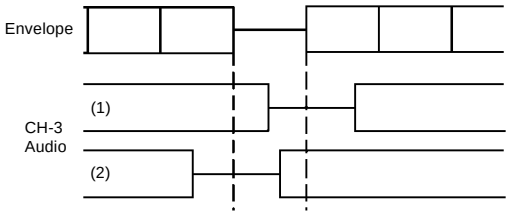
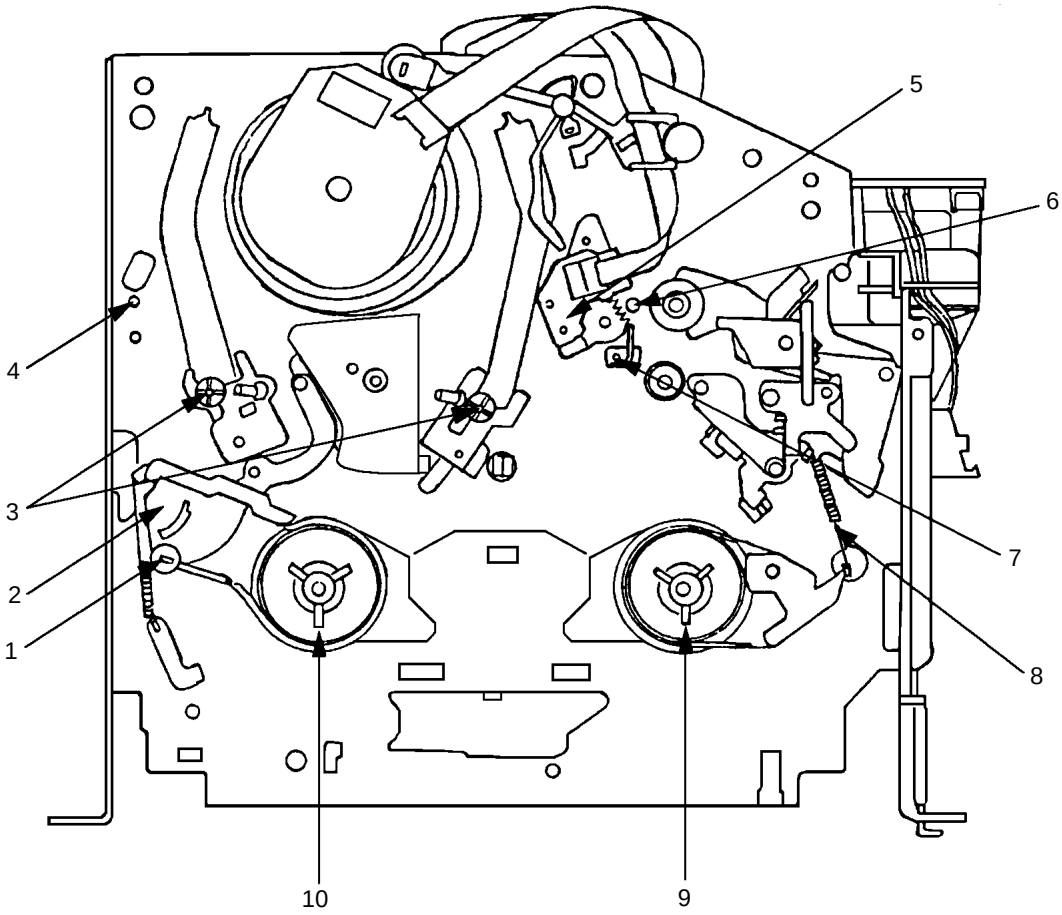


Fig. 2-3

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel
10. S Reel

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease.
  Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1.**

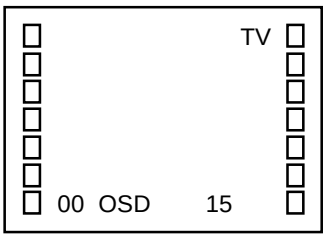


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2.**
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R BIAS	23	TEST STEREO
11	G BIAS	24	X-RAY TEST
12	B BIAS		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **TP4201.**
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

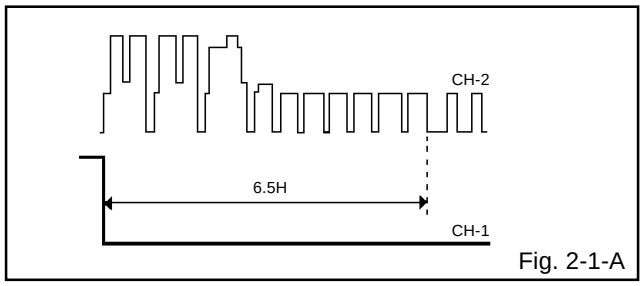


Fig. 2-1-A

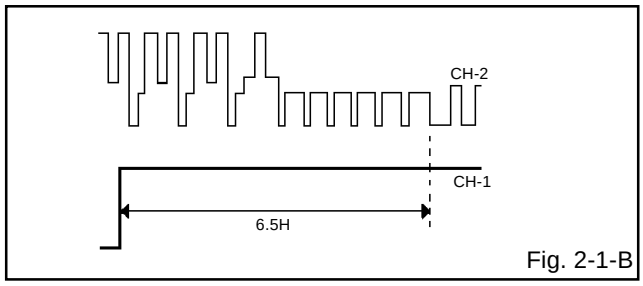


Fig. 2-1-B

2-2: RF AGC

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP602** and the **pin 1 (GND) of CP602.**
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.9 ± 0.15V.

ELECTRICAL ADJUSTMENTS

2-3: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Connect the digital voltmeter between the **pin 7 of CP602** and the **pin 1 (GND) of CP602.**
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5 ± 0.5V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Input DC12V to DC Jack and turn Power ON.
2. Connect the digital voltmeter to **TP401** and **GND.**
3. Set condition is AV MODE without signal.
4. Adjust the **VR501** until the digital voltmeter is 101 ± 0.5V.
5. Input AC100V to AC cord and remove the DC Jack cord. Check if the Power is ON before doing the above Procedure.
6. Adjust the **VR502** until the digital voltmeter is 102 ± 0.5V.

2-5: CUT OFF

1. Adjust the unit to the following settings. R.DRIVE=64, B.DRIVE=64, R.BIAS=128, G.BIAS=128, B.BIAS=128, SUB BRIGHT=128, SUB CONTRAST=96.
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-7: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R.BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R.BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "R.DRIVE", "B.DRIVE", "G.BIAS" or "B.BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R.DRIVE, B.DRIVE, G.BIAS or B.BIAS.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-8: H. VCO

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "H VCO".
2. Check if the step No. of H VCO is "4".

2-9: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
3. Press the VOL. UP/DOWN button on the remote control to adjust to the point just before the white 5% begin to shine.
4. Receive the monoscope pattern. (Audio Video Input)
5. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~3.

2-10: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803.**
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-2.)**
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 3~5.

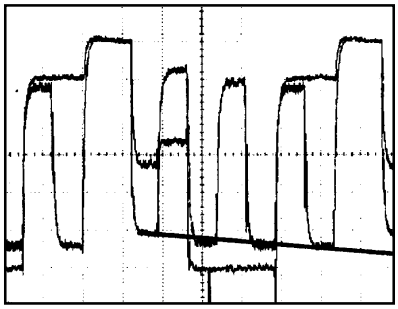


Fig. 2-2

2-11: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 120 ± 5% of the white level. **(Refer to Fig. 2-3)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

ELECTRICAL ADJUSTMENTS

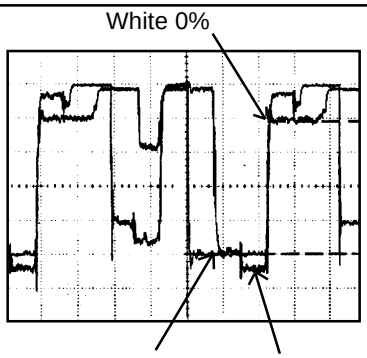


Fig. 2-3

2-12: SUB CONTRAST MANUAL

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "96".
3. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 1~2.

2-13: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-14: VERTICAL SHIFT

1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line of the monoscope comes to approximate center of the CRT.

2-15: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.
4. Receive a broadcast and check if the picture is normal.

2-16: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

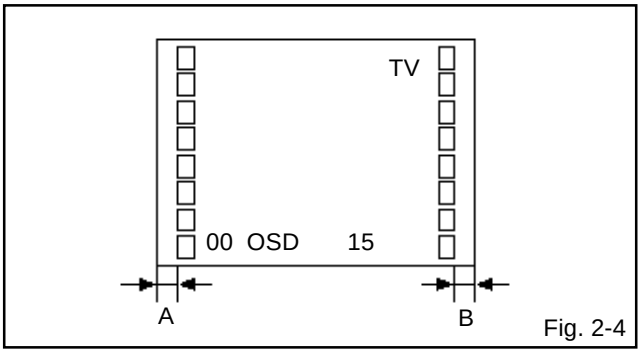


Fig. 2-4

2-17: COLOR LEVEL

1. Receive the color bar pattern.
2. Connect the oscilloscope to **TP4201**.
3. When setting to the Y-LEVEL 100%, check if the MAGENTA is 45 ± 10%. **(Refer to Fig. 2-5)**

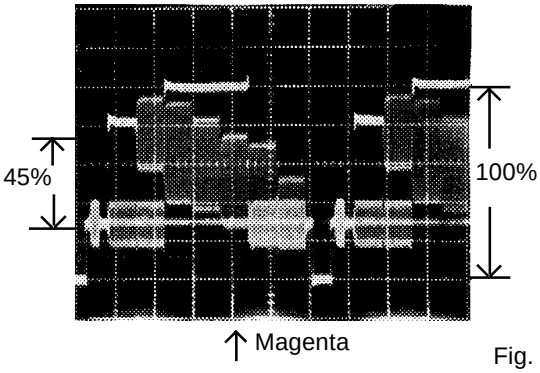


Fig. 2-5

2-18: SUB SHARPNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "SHARPNESS".
2. Check if the step No. of SHARPNESS is "40".
3. Press the AV button on the remote control to set the AV mode. Then perform the above adjustments 1~3.

2-19: E-E LEVEL (VIDEO AGC)

1. Receive the color bar pattern. (Audio Video Input)
2. Connect the oscilloscope to **TP4201**.
3. Check if the VIDEO OUTPUT LEVEL is 1 ± 0.2Vp-p.

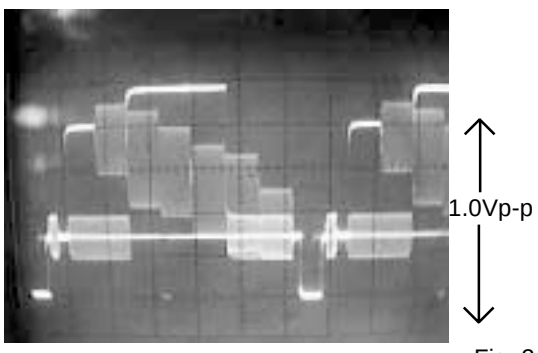
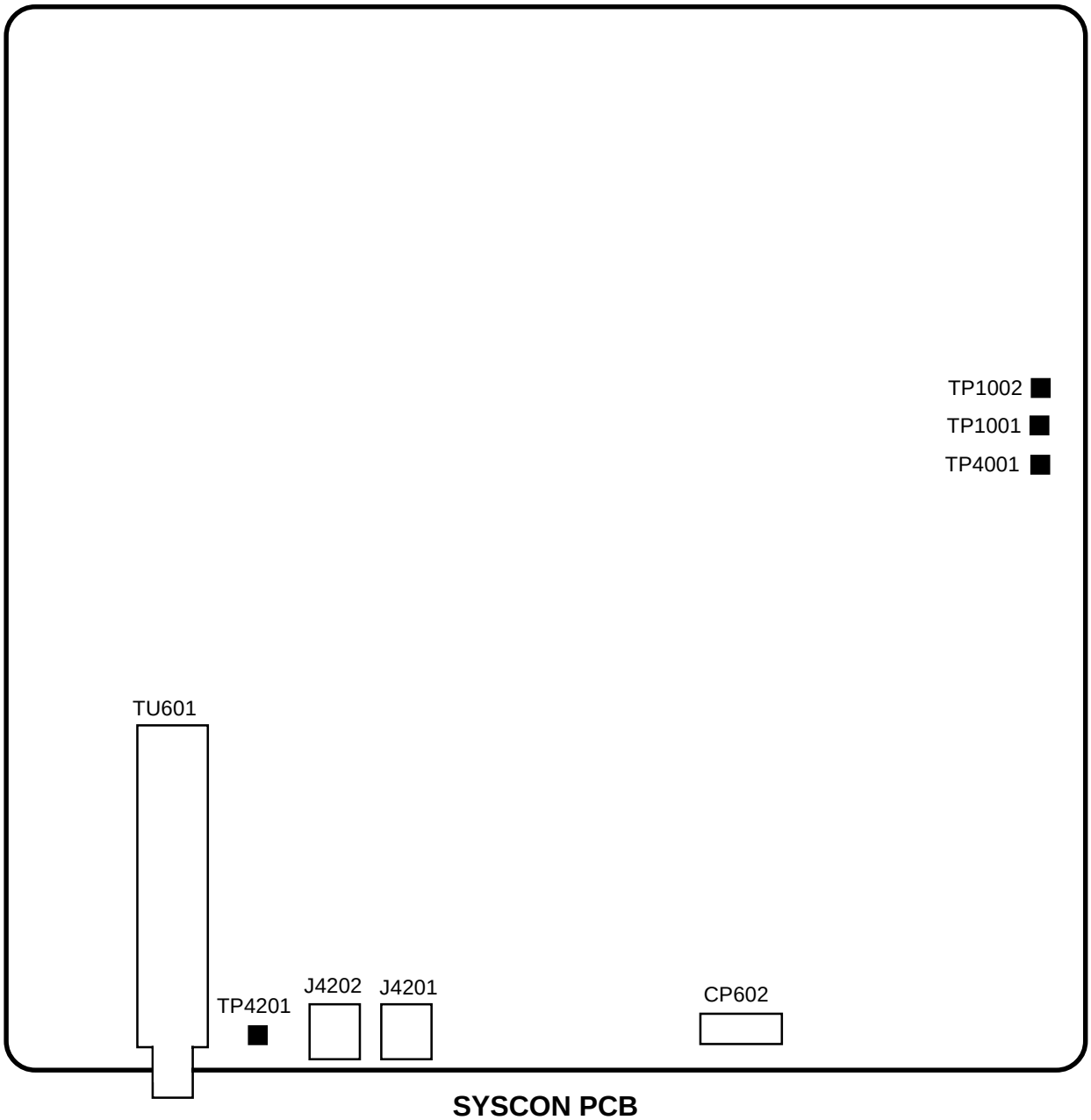


Fig. 2-6

ELECTRICAL ADJUSTMENTS

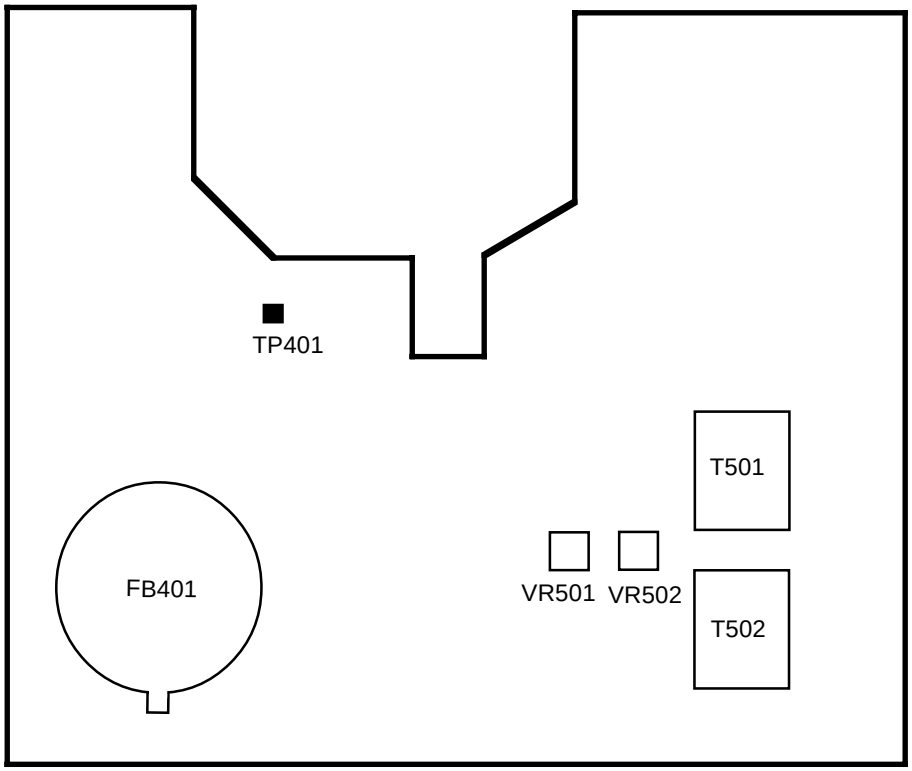
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



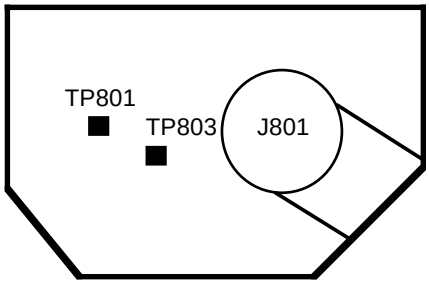
SYSCON PCB

ELECTRICAL ADJUSTMENTS

(TV SECTION)



MAIN PCB



CRT PCB

ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from the color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

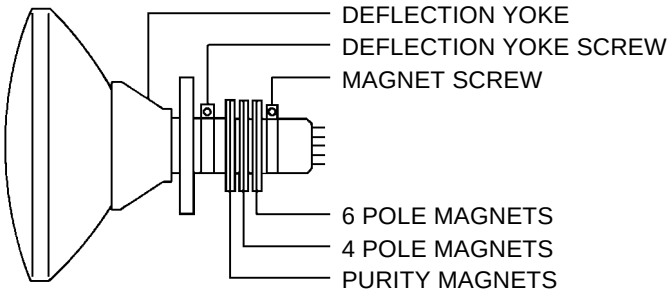


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**

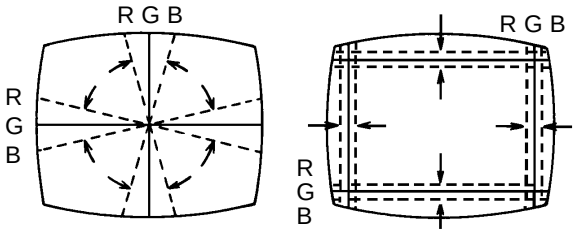


Fig. 4-2-a

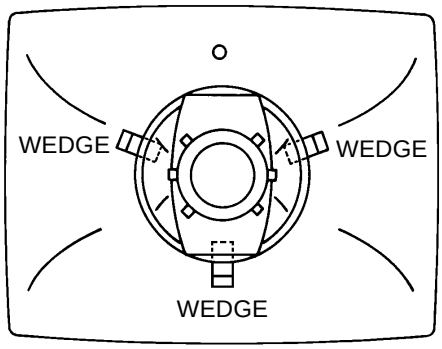
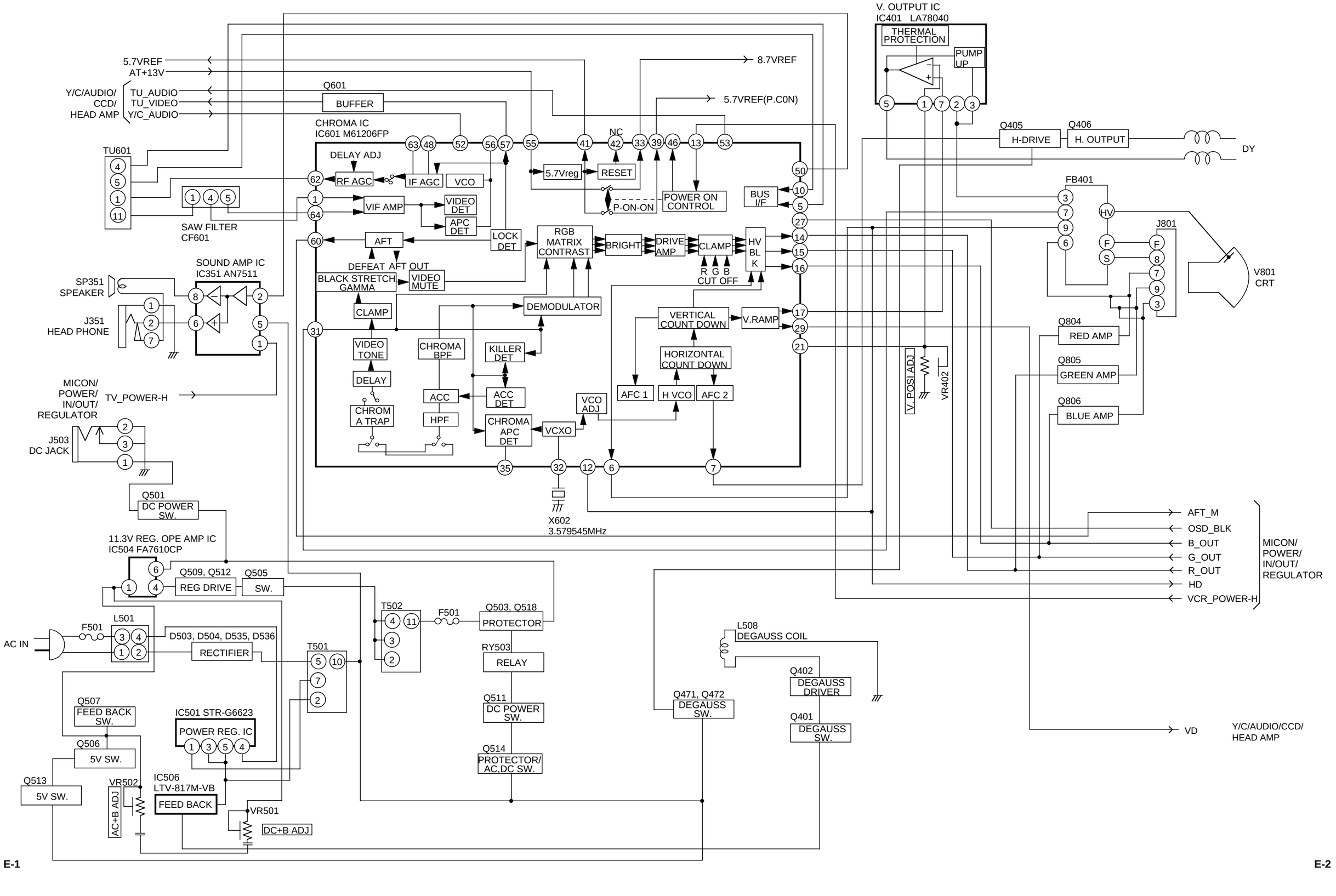


Fig. 4-2-b

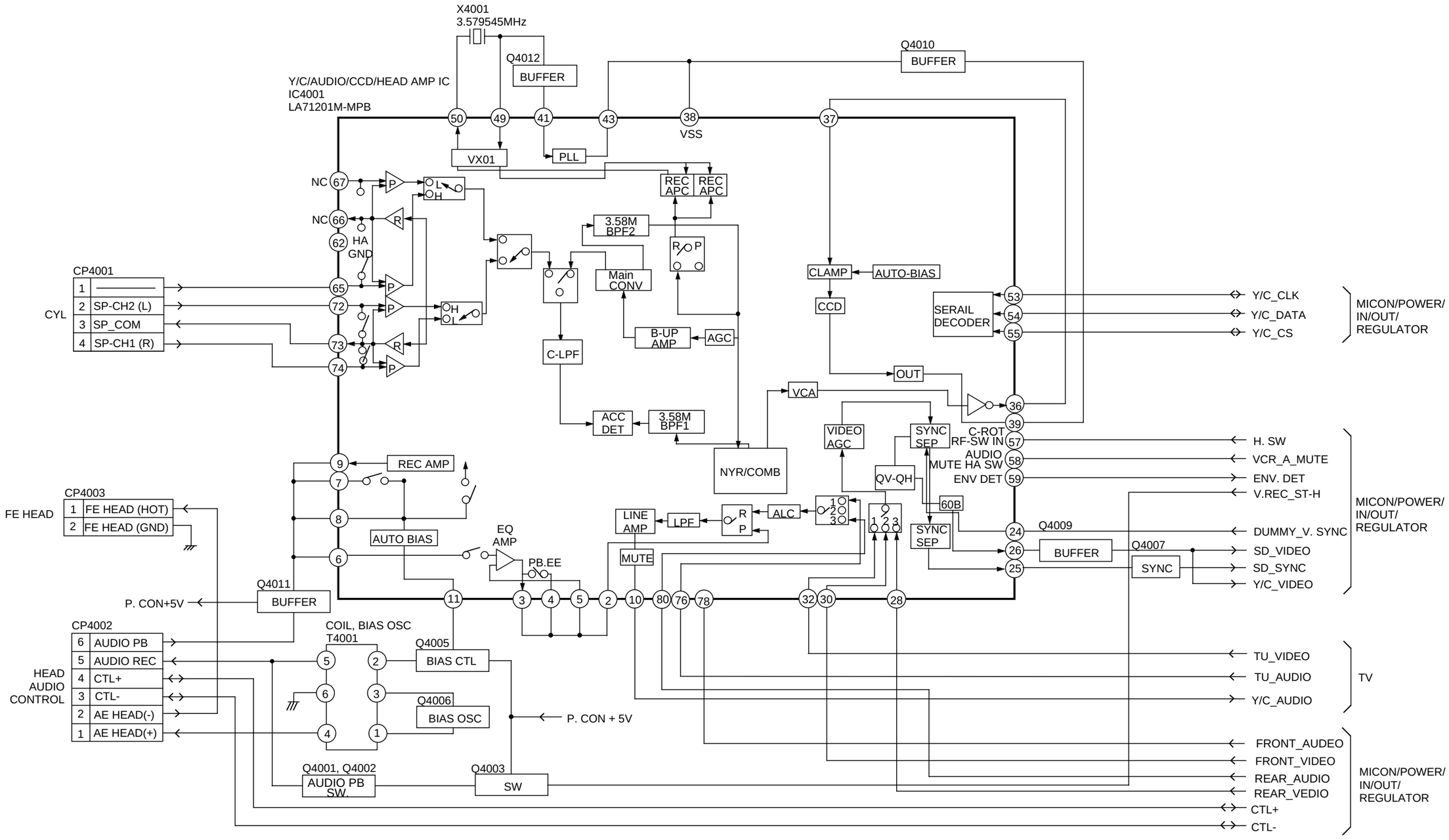
TV BLOCK DIAGRAM



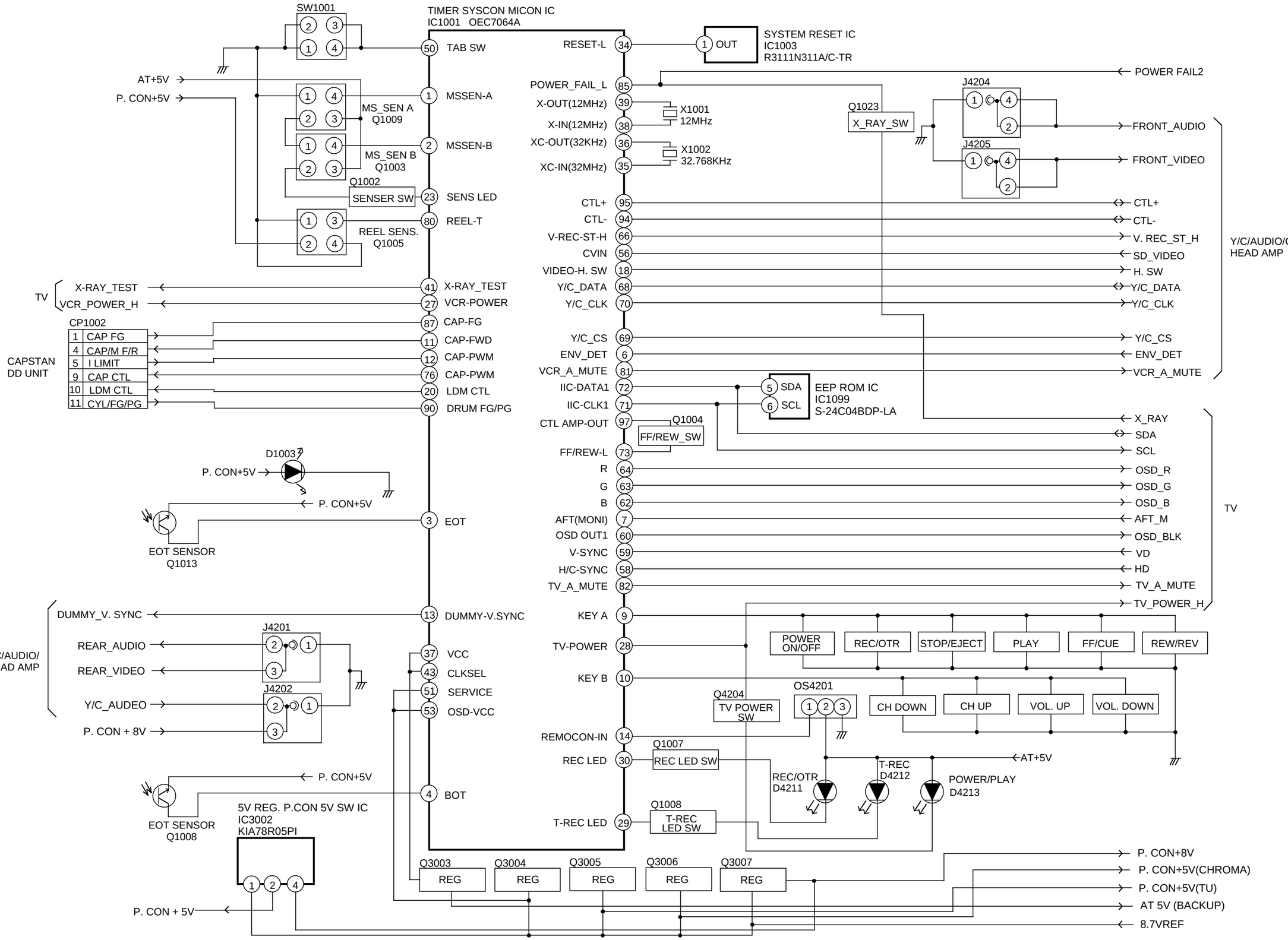
E-1

E-2

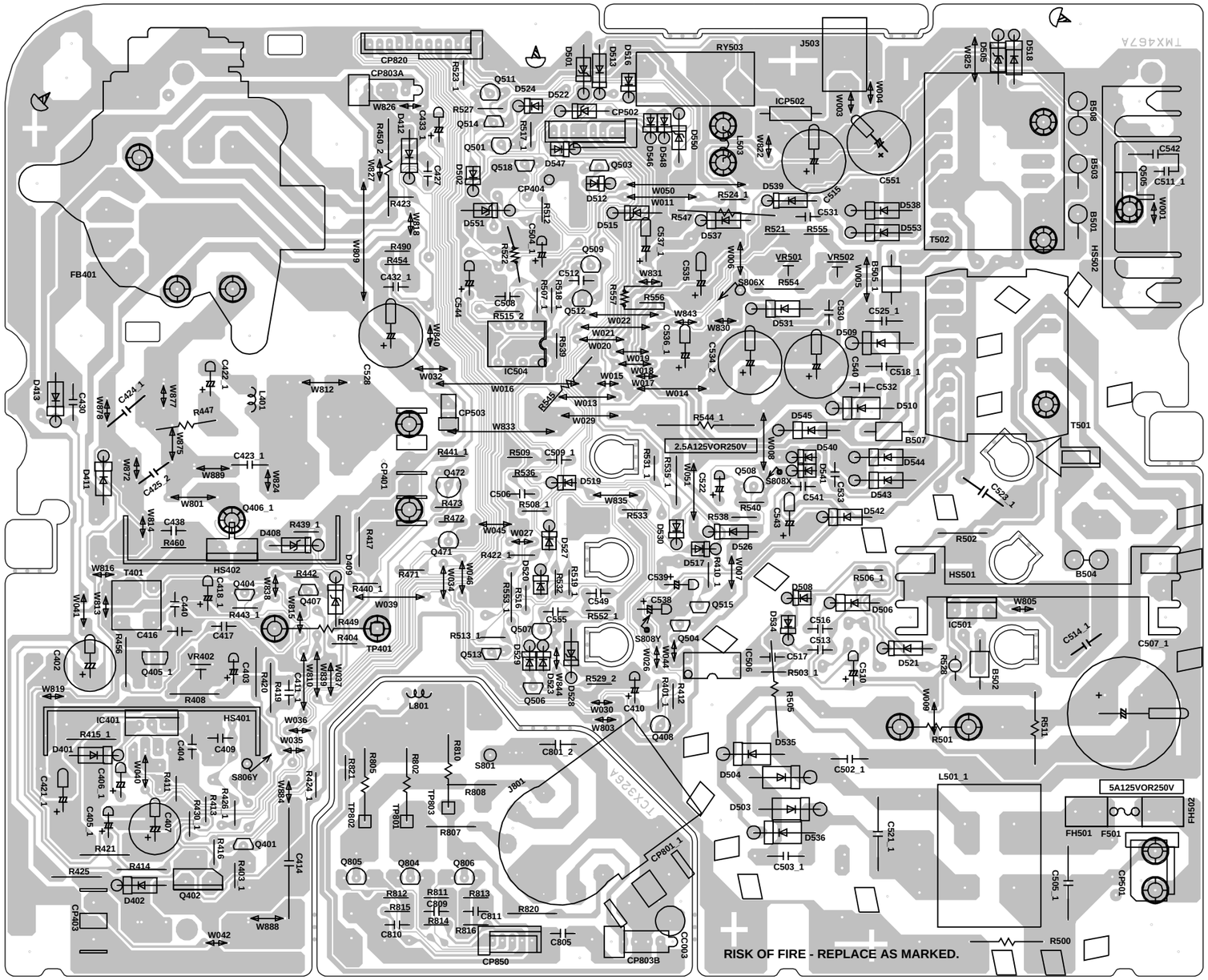
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



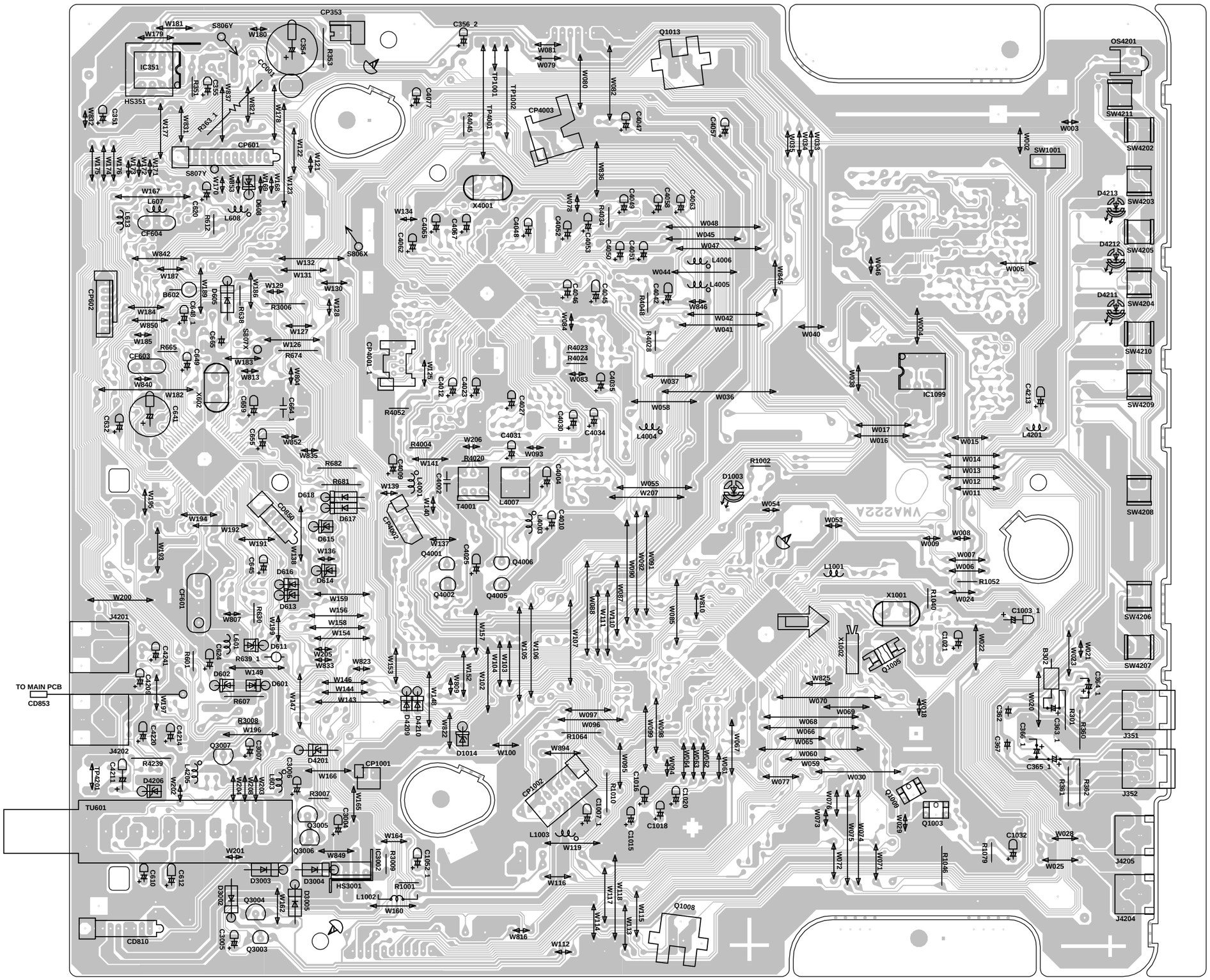
MICON/IN/OUT/REGULATOR BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
MAIN/CRT
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE


CP353
C356_2
Q1013
OS4201
SW4211
SW4202
SW4203
SW4205
SW4204
SW4210
SW4209
SW4208
SW4206
SW4207
J351
J352
J4205
J4204
IC351
HS351
S806Y
S807Y
S806X
S807X
CP601
CP602
CF604
CF603
CF601
X602
X4001
X1001
CP4003
CP4001_1
CP4002
CP1001
CP1002
TP1001
TP1002
TP4001
T4001
L4007
L4003
L4004
L4005
L4006
L4201
L1001
L1003
L4001
L607
L608
L601
L4205
L1002
TU601
J4201
J4202
TO MAIN PCB
CD853
CD810
CD858
TP4201
IC1099
X1002
Q1006
Q1008
Q1003
Q4001
Q4002
Q4004
Q4005
Q4006
Q3003
Q3004
Q3005
Q3006
Q3007
D1003
D1014
D4201
D4206
D4209
D4210
D4211
D4212
D4213
D601
D602
D605
D606
D608
D611
D613
D614
D615
D616
D617
D618
B602
B302
HS3001
D3002
D3003
D3004
D3005
R4052
R4004
R4020
R4023
R4024
R4028
R4034
R4042
R4048
R1002
R1064
R1001
R1052
R1040
R1079
R1046
R3006
R3007
R3008
R3009
R4239
R674
R682
R681
R1010
C4077
C4047
C4057
C4049
C4058
C4063
C4055
C4067
C4048
C4062
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C4042
C4035
C4012
C4023
C4027
C4030
C4034
C4031
C4009
C4002
C4025
C4010
C1016
C1020
C1018
C1015
C1007_1
C1052_1
C1003_1
C1021
C1032
C4213
C4214
C4244
C4209
C4220
C4211
C3007
C3006
C3004
C3002
C3005
C362
C367
C366_1
C364_1
C363_1
C365_1
C354
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C355
C356_1
C649
C641
C652
C655
C689
C664_1
C665
C645
C624
C610
C612
C648_1
W181
W179
W180
W177
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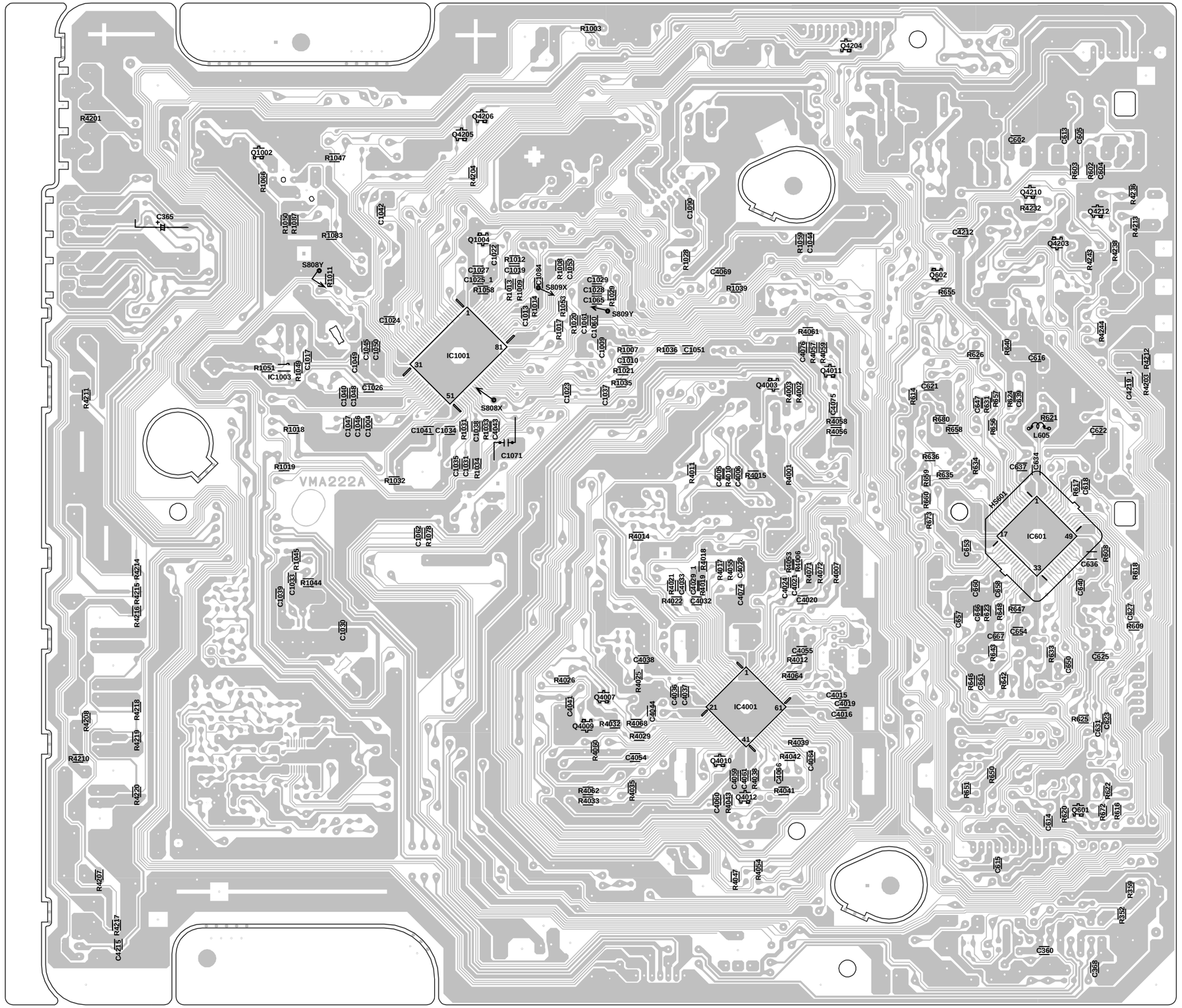
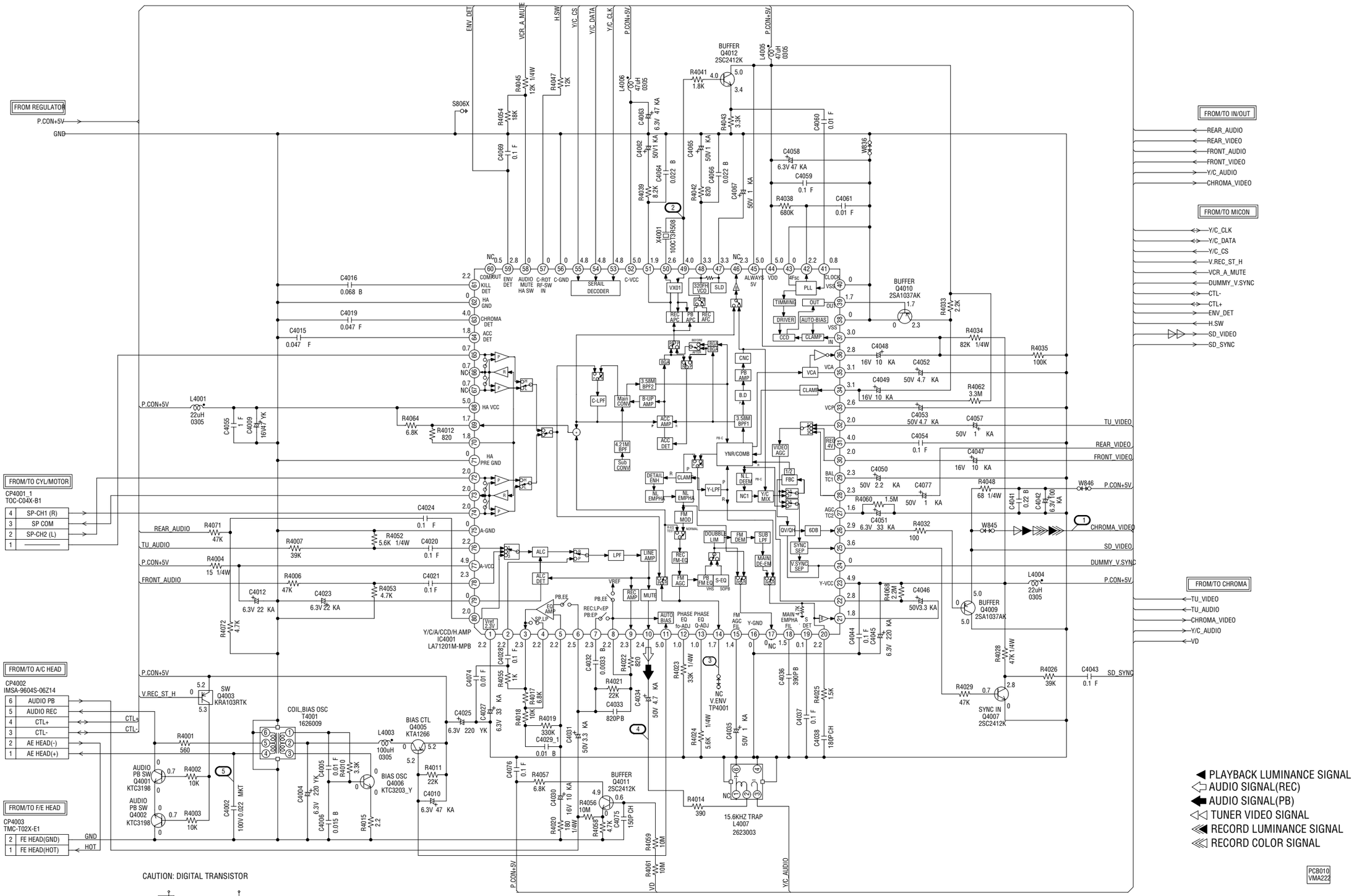
W1030
W1031
W1032
W1033
W1034
W1035
W1036
W1037
W1038
W1039
W1040

PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

MICON SCHEMATIC DIAGRAM
(SYSCON PCB)

FROM REGULATOR

AT+5V[BACKUP]
AT+5V[UCON]
GND
MOTOR_GND
P.CON+5V
AT+12V

EEP ROM IC
IC1030
S-24C04BDP-LA

TIMER SYSCON MICON IC
IC1001
OEC7064A

SYSTEM RESET IC
IC1003
R3111N311A/C-TR

SENSOR SW
Q1002
2SC2412K

TAB SW
SW1001
SPVF130100

MS_SEN B
Q1003
RPI-352Q01R

MS_SEN A
Q1009
RPI-352Q01R

REEL SENS
Q1005
RPI-301

EOT SENSOR
Q1013
PNA2604M010R

BOT SENSOR
Q1008
PNA2604M010R

D1003
SID1050CM

CP1001
52287-0211
1 DEW-
2 DEW+

CP1002
TMC-J12P-B2
1 CAP FG
2 CAP VCO
3 VCC(5V)
4 CAP.M F/R
5 I LIMIT
6 MOTOR GND
7 GND
8 CYL/LAD VCO
9 CAP CTL
10 LDM CTL
11 CYL FG/PG
12 CYL CTL

FROM/TO Y/C/AUDIO/CCD/HEAD AMP
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
SD_VIDEO
ENV_DET
VCR_A_MUTE
CTL+
CTL-
DUMMY_V.SYNC
V.REC_ST_H
SD_SYNC

FROM/TO CHROMA
HD
VD
AFT_M
SCL
SDA
OSD_R
OSD_G
OSD_B
OSD_BLK
POWER_FAIL[DC]
X-RAY_TEST
VCR_POWER_H
TV_POWER_H
SPOT_H
IIC_OFF

FROM/TO IN/OUT
VCR_A_MUTE
TV_POWER_H
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
EXT_MUTE
EXT_A_MUTE

TO SOUND AMP
TV_POWER_H
TV_A_MUTE

FROM DEW SENSOR
FROM/TO CAP MOTOR

81 VCR_A_MUTE
82 TV_A_MUTE
83 SP/LP/EP-H
84 CA/MA_SEL
50 TAB SW
49 OSD-VSS
48 CM_ADV_AUDIO/AV2
98 AMP-VCC
99 ANALOG VCC
100 DEW
33 E/V_MASK/PLAY LED
32 RENT_H
31 ON-TIMER LED

≪ B.SIGNAL
◀ G.SIGNAL
◀ R.SIGNAL
◁ TUNER VIDEO SIGNAL
◀ DEFLECTION SIGNAL
◀◀ CAPSTAN AFC SIGNAL
◁ CYLINDER APC SIGNAL

PCB010
VMA222

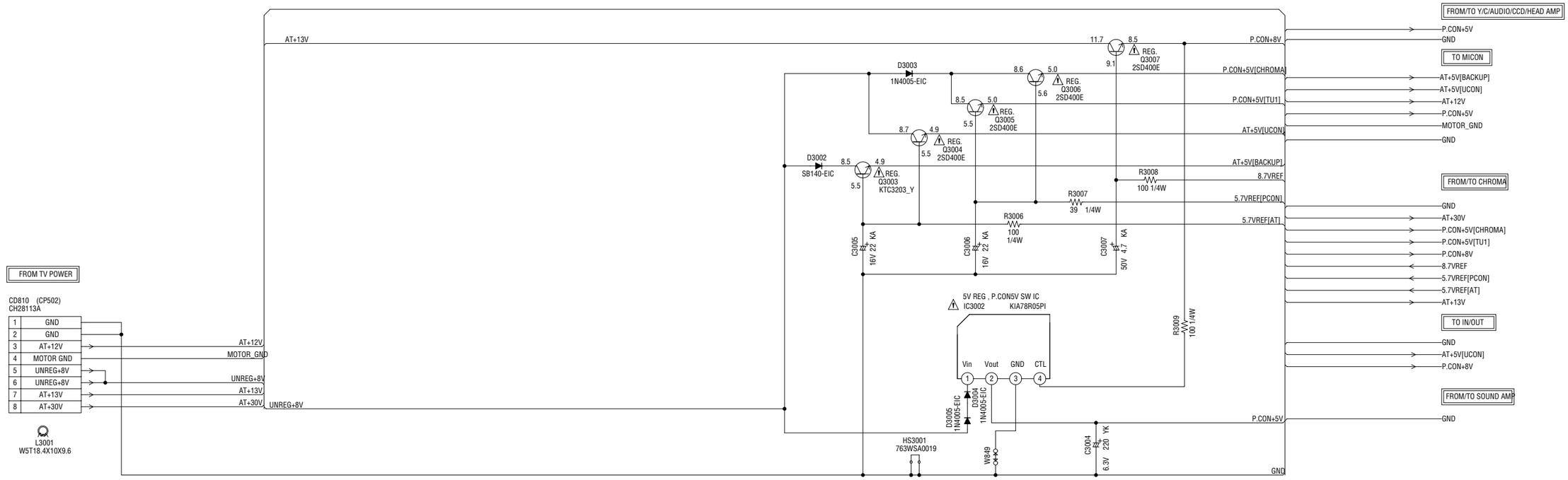
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

REGULATOR SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

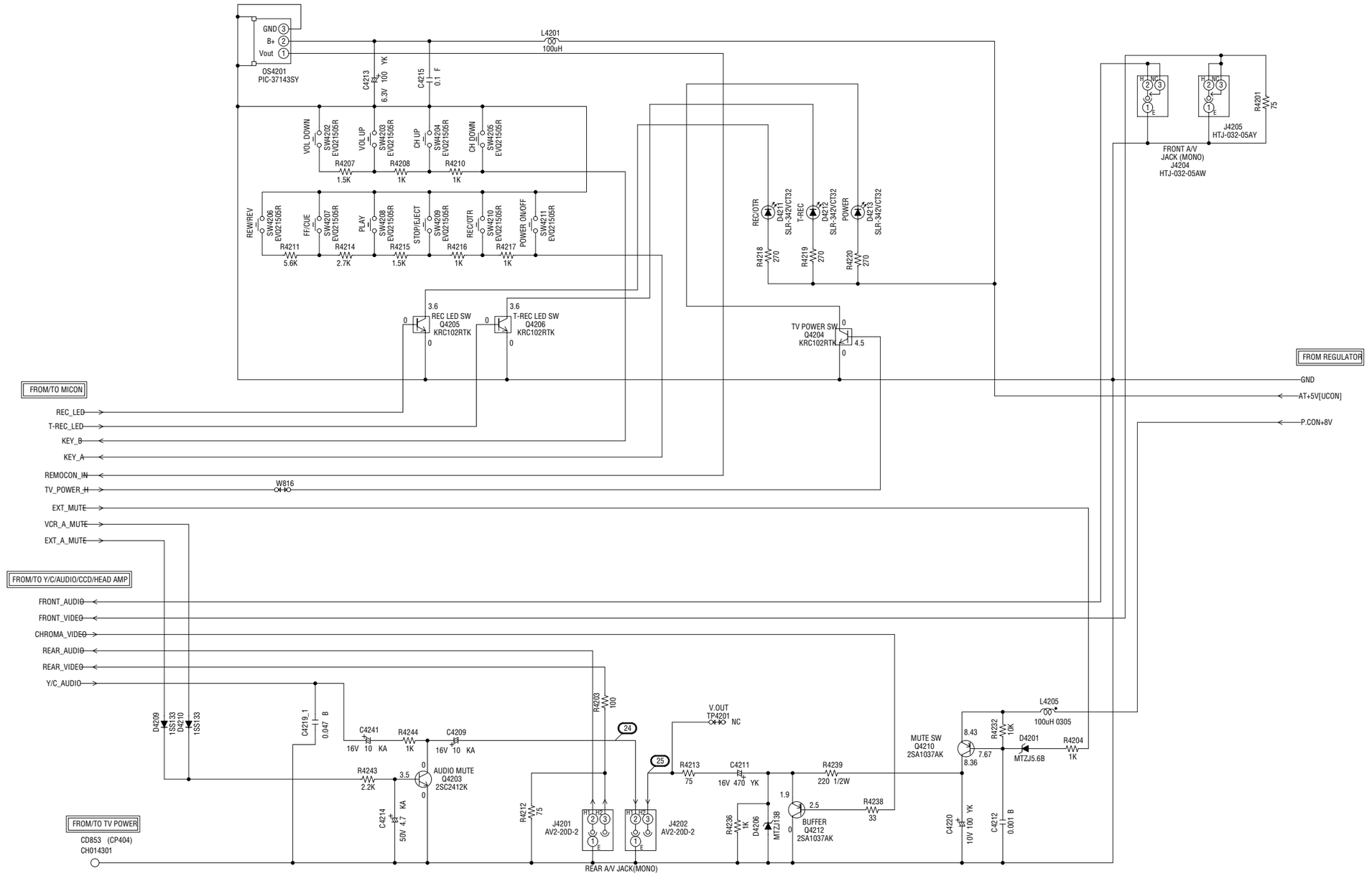
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

PCB010
VMA222

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

PCB010
VMA222

CHROMA SCHEMATIC DIAGRAM (SYSCON PCB)

FROM/TO MICON

SPOT_H
POWER_FAIL[DC]
VD
OSD_R
OSD_G
OSD_B
OSD_BLK
SDA
SCL
AFT_M
VCR_POWER_H
HD
X-RAY_TEST
TV_POWER_H
IIC_OFF

TEST POINT

CP602
8283_0712_00_000

7	INTELLGENT MONI
6	B.OUT
5	AGC_M
4	IIC_OFF
3	SDA
2	SCL
1	GND

FROM/TO REGULATOR

AT+30V
GND
P.CON+5V[TU1]
AT+13V
P.CON+5V[CHROMA]
P.CON+8V
8.7VREF
5.7VREF[PCON]
5.7VREF[AT]

TU601 TECC1040PG32D

HS601 763WAA0014 NC

B602 W4BRH3.5X6X1

L608 100uH 0305

L607 22uH

L601 1.2uH

L603 47uH 0305

SAW FILTER CF601 SAF45MFY220ZR

CHROMA IC IC601 M61206FP

BUFFER Q601 2SA1037AK

CF604 EFCT4R5MW5

CF603 EFCT4R5V55A

X602 100CT3R505

D601 1SS133 D602 MTZJ8.2C

D605 1N4005-EIC

D608 MTZJ6.8B

D611 MTZJ9.1B

D613 MTZJ6.8B D614 MTZJ6.8B D615 MTZJ6.8B

D616 1SS133 D617 1SS133 D618 1SS133

S807X S807Y

SWITCHING Q602 KRC102RTK

L616 W5T18.4X10X9.6

L617 W5T18.4X10X9.6

FROM/TO Y/C/AUDIO/CCD/HEAD AMP

Y/C_AUDIO
TU_AUDIO
TU_VIDEO
CHROMA_VIDEO
VD

TO SOUND AMP

SOUND+B
SOUND_GND
AUDIO_OUT

FROM/TO DEFLECTION

CP601 (CP820) CH28026A

SOUND+B	1
SOUND GND	2
H.OUT	3
GND	4
V.FEEDBACK	5
V.OUT	6
ACL	7
H_PLUSE	8
TV POWER H	9
POWER FAIL(DC)	10
X-RAY TEST	11

TO CRT

CD850 (CP850) CH25095A

GND	5
CUT OFF	4
G.OUT	3
R.OUT	2
B.OUT	1

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

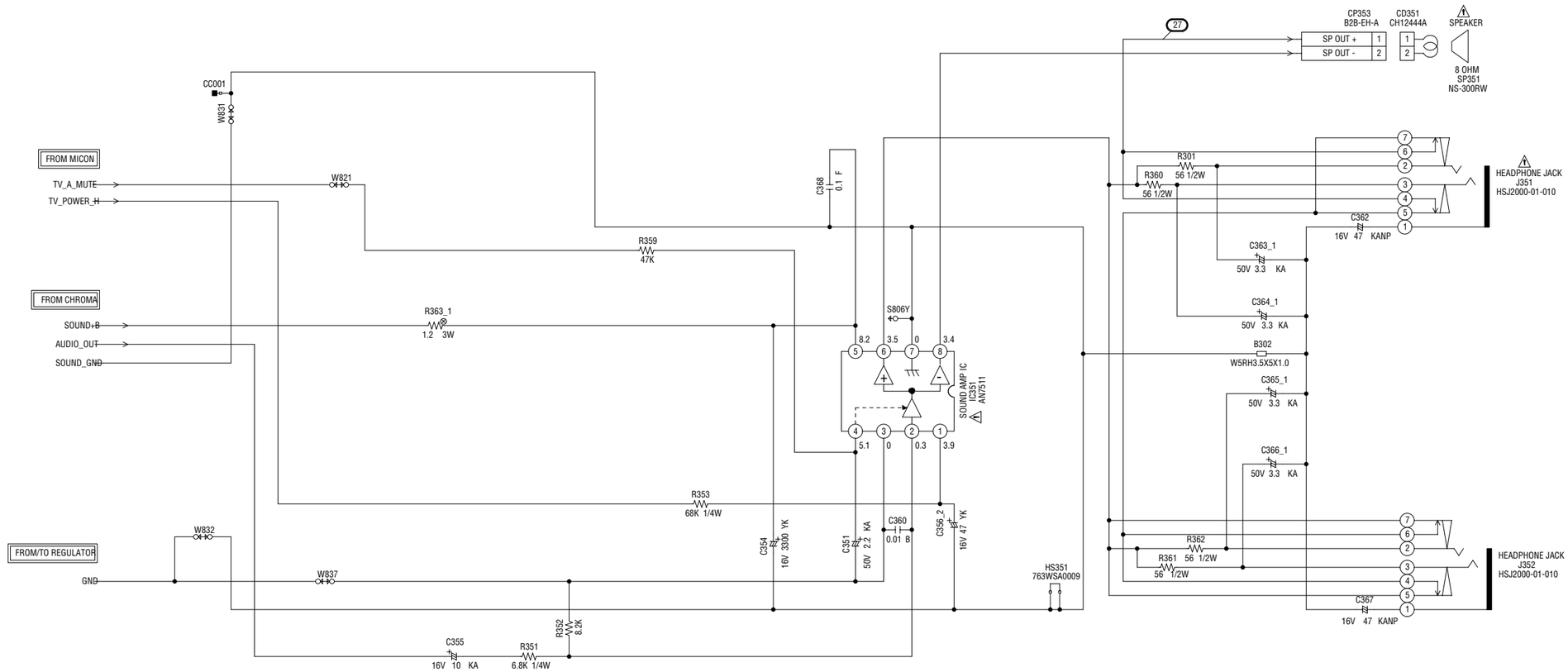
◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL
◀ DEFLECTION SIGNAL

CAUTION: DIGITAL TRANSISTOR

PCB010 VMA222

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

PCB010
VMA222

TV POWER SCHEMATIC DIAGRAM (MAIN PCB)

5A 125V　　10A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V(F501) AND 10A 125V (ICP502).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V(F501) ET 10A 125V (ICP502).

CAUTION: ICP502 IS MANUFACTURED BYLITTELFUSE INC.,TYPE 251.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

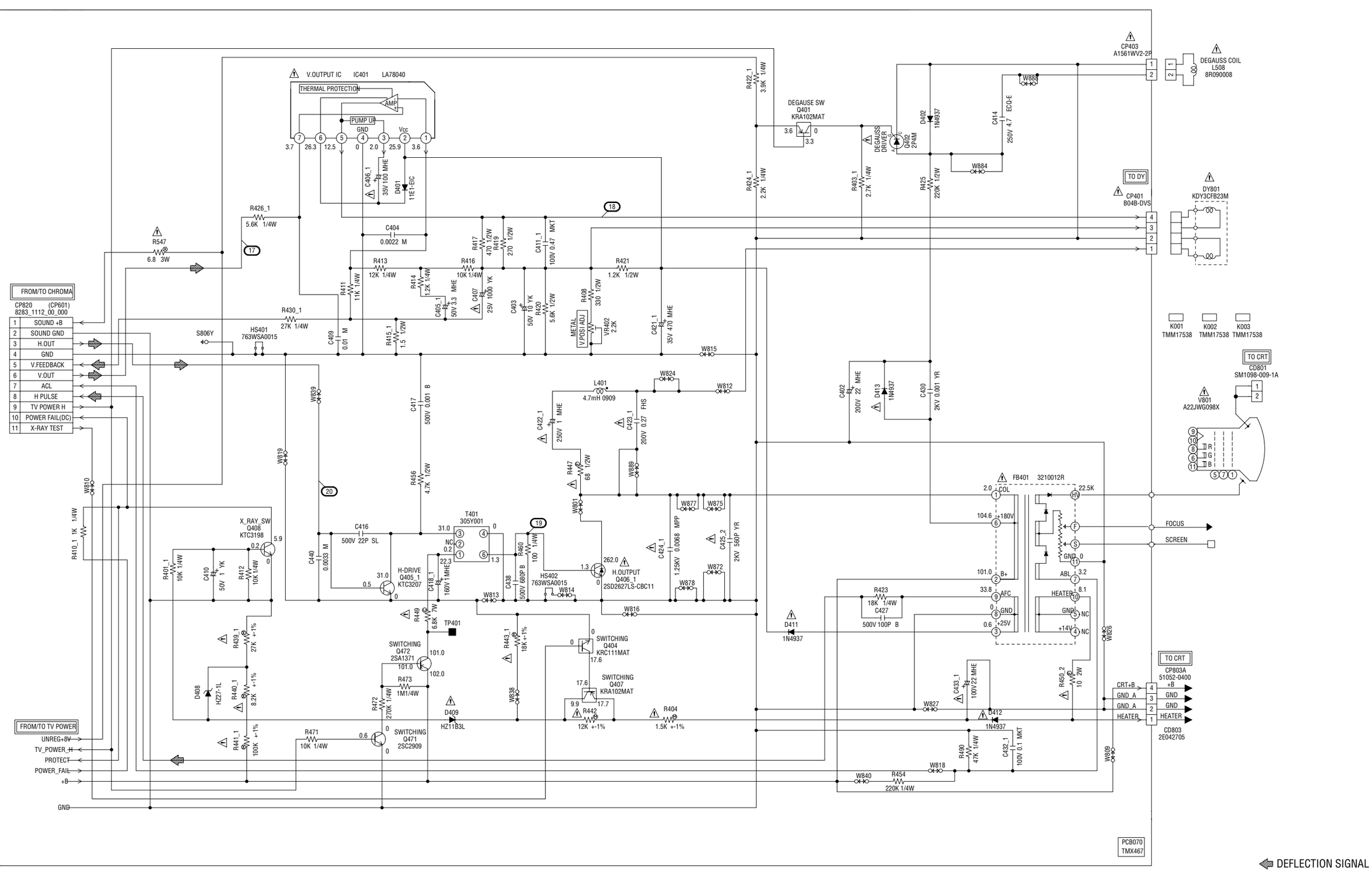
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

CAUTION: ⓗ IS THE LIVE CONNECTION

DEFLECTION SCHEMATIC DIAGRAM (MIAN PCB)



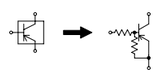
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

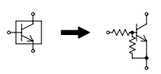
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

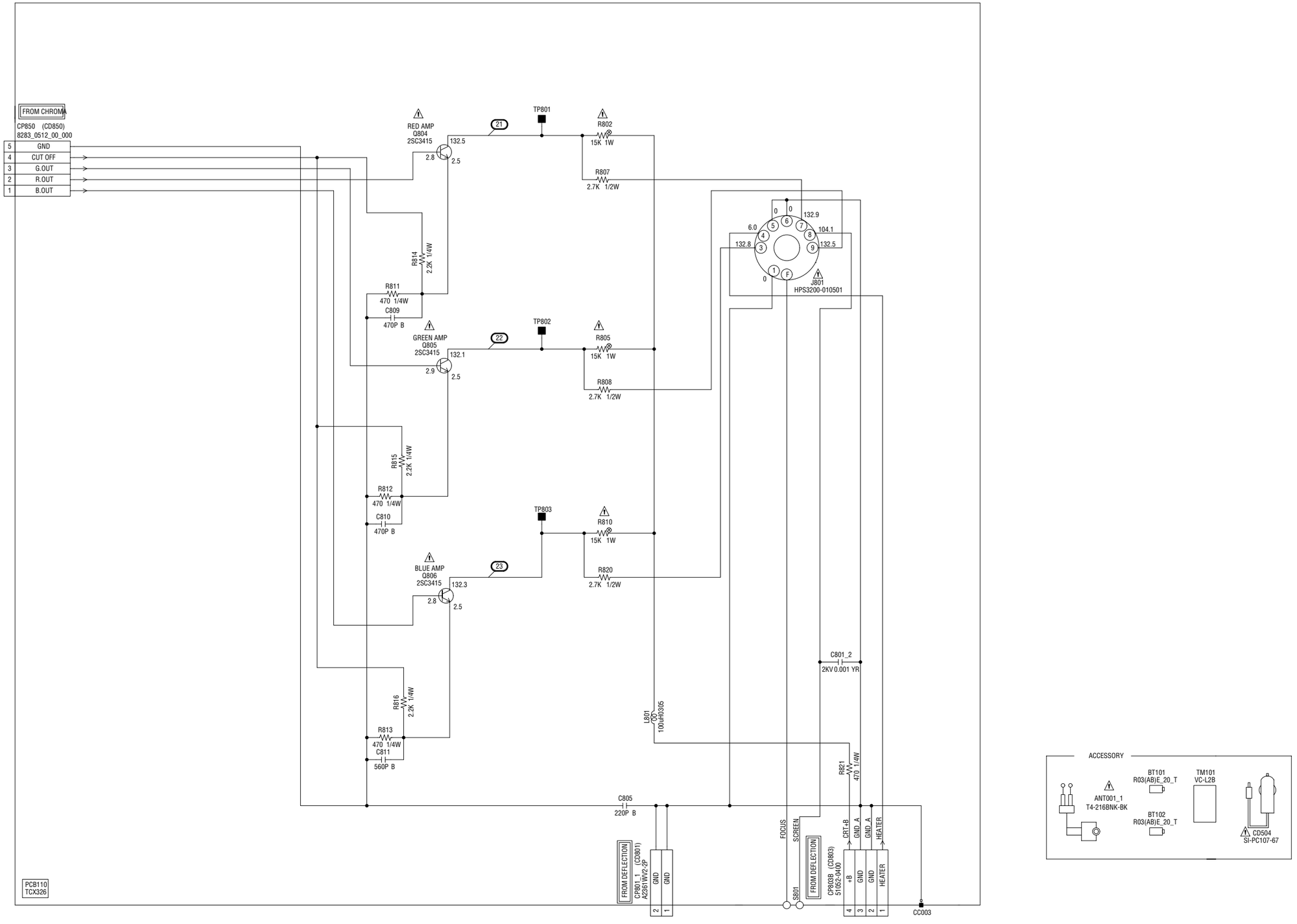
CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



CRT SCHEMATIC DIAGRAM (CRT PCB)



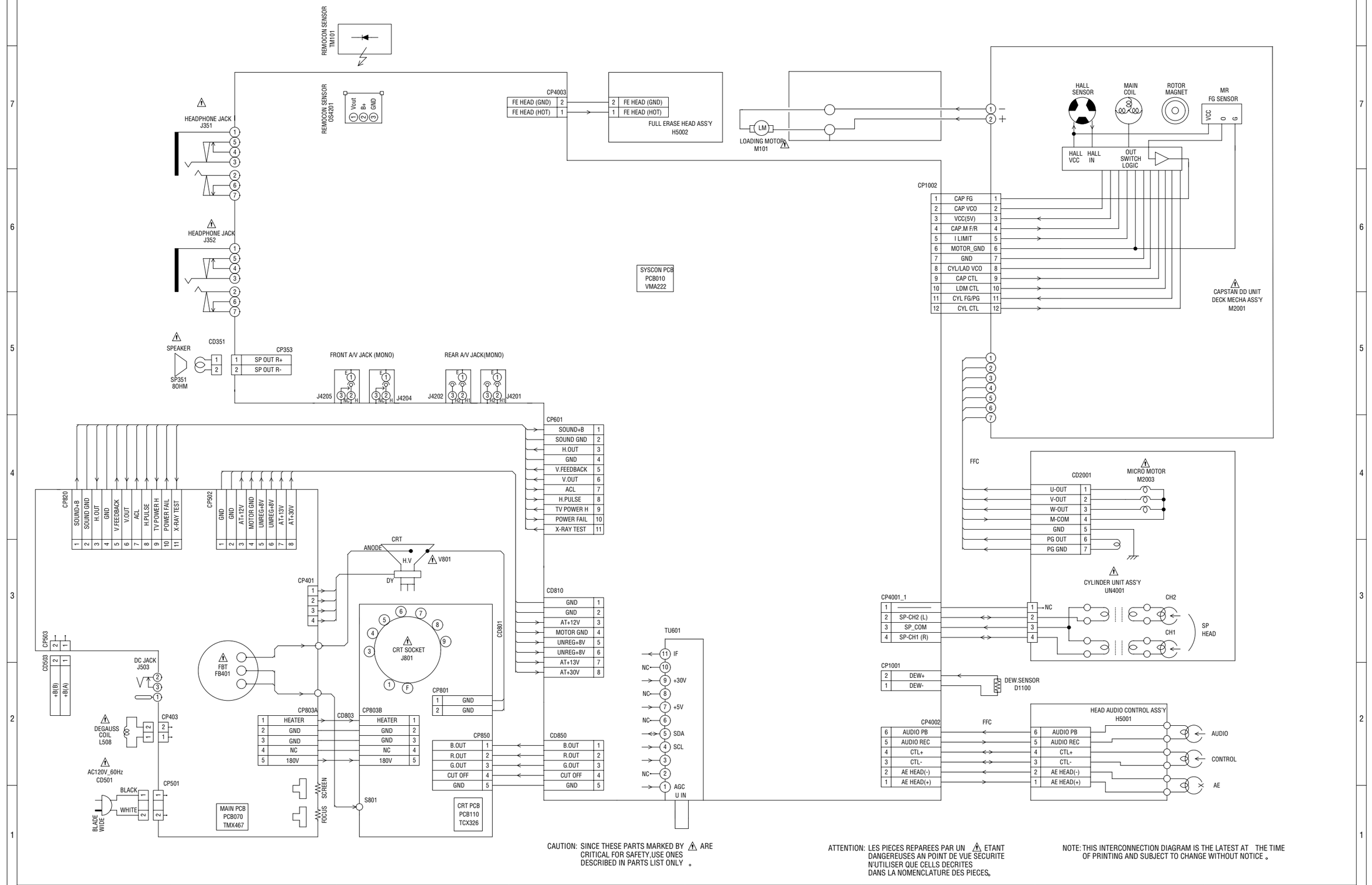
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

INTERCONNECTION DIAGRAM



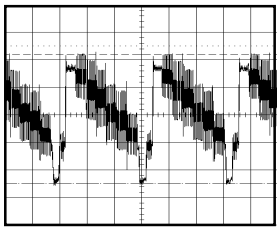
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

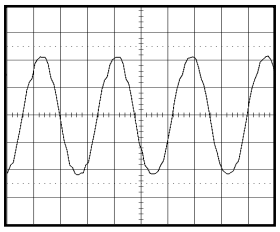
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

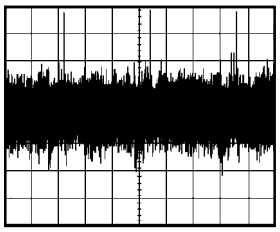
Y/C/AUDIO/CCD/HEAD AMP



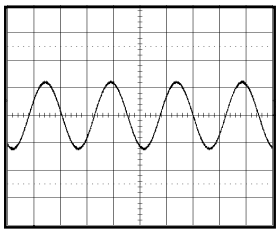
① PB
0.5V 20μs/div



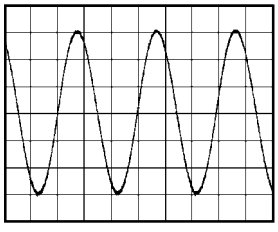
② POWER ON
100mV 0.1μs/div



③ PB
10mV 20us/div

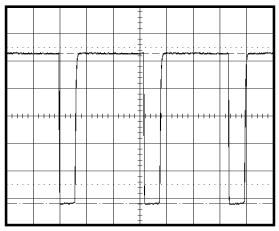


④ PB
0.5V 1ms/div

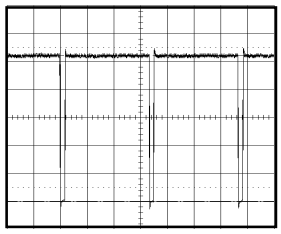


⑤ REC
10.0V 5us/div

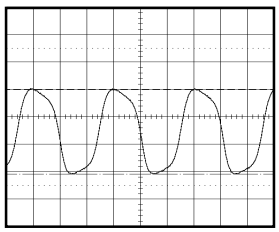
MICON



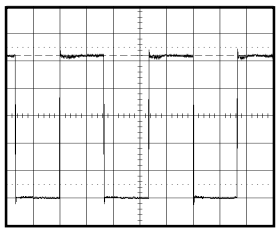
⑥ POWER ON
1.0V 20μs/div



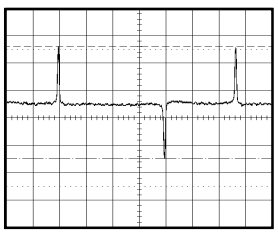
⑦ POWER ON
0.5V 10ms/div



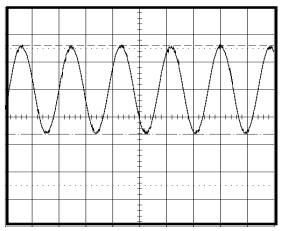
⑧ POWER ON
1.0V 10μs/div



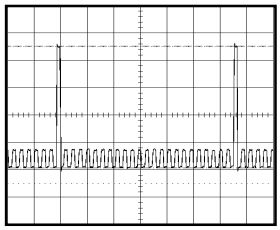
⑨ PB
1.0V 10ms/div



⑩ PB
1.0V 5ms/div

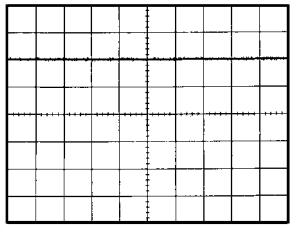


⑪ PB
0.5V 0.5ms/div

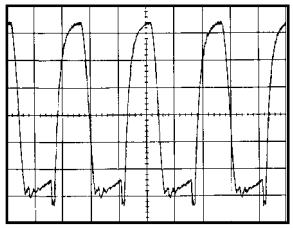


⑬ PB
1.0V 5ms/div

TV POWER

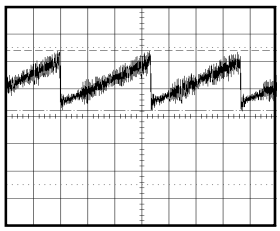


⑮ 5.0V 20ms/div



⑯ 500mV 5μs/div

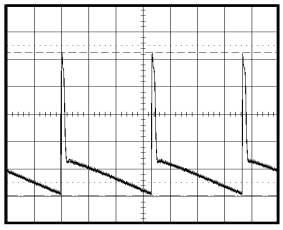
DEFLECTION



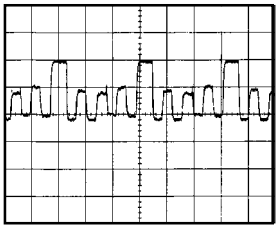
⑰ 0.5V 5ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

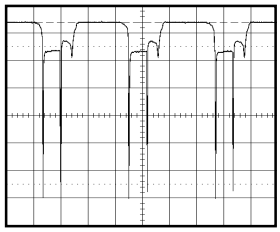
WAVEFORMS



(18) 10.0V 5ms/div

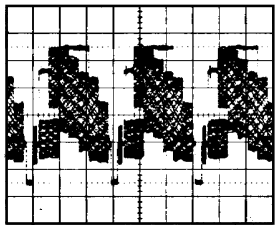


(23) 50.0V 20µs/div

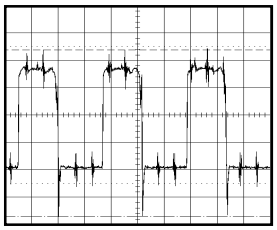


(19) 2.0V 20µs/div

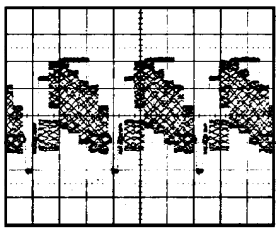
IN/OUT



(24) 200m 20ns/div

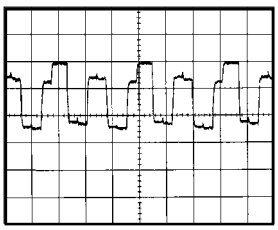


(20) 200mV 20µs/div



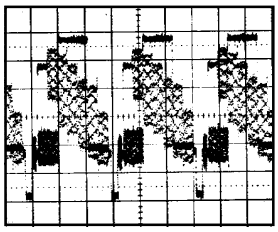
(25) 0.5V 20µs/div

CRT

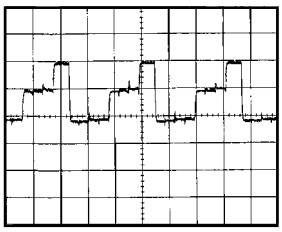


(21) 50.0V 20µs/div

CHROMA

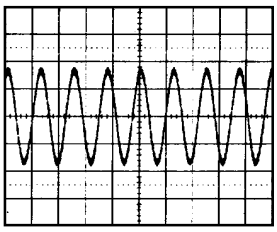


(26) 200mV 20µs/div



(22) 50.0V 20µs/div

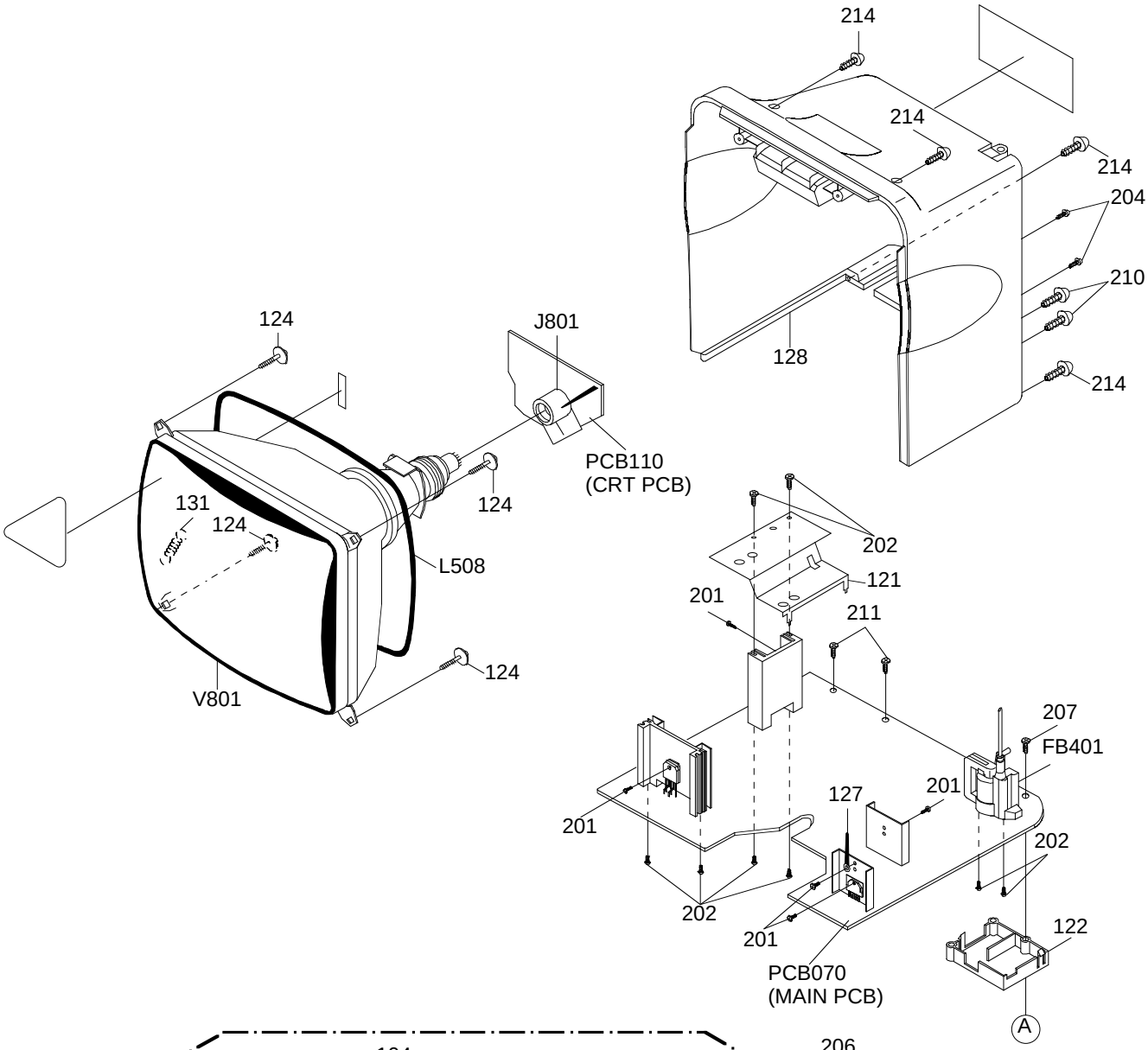
SOUND AMP



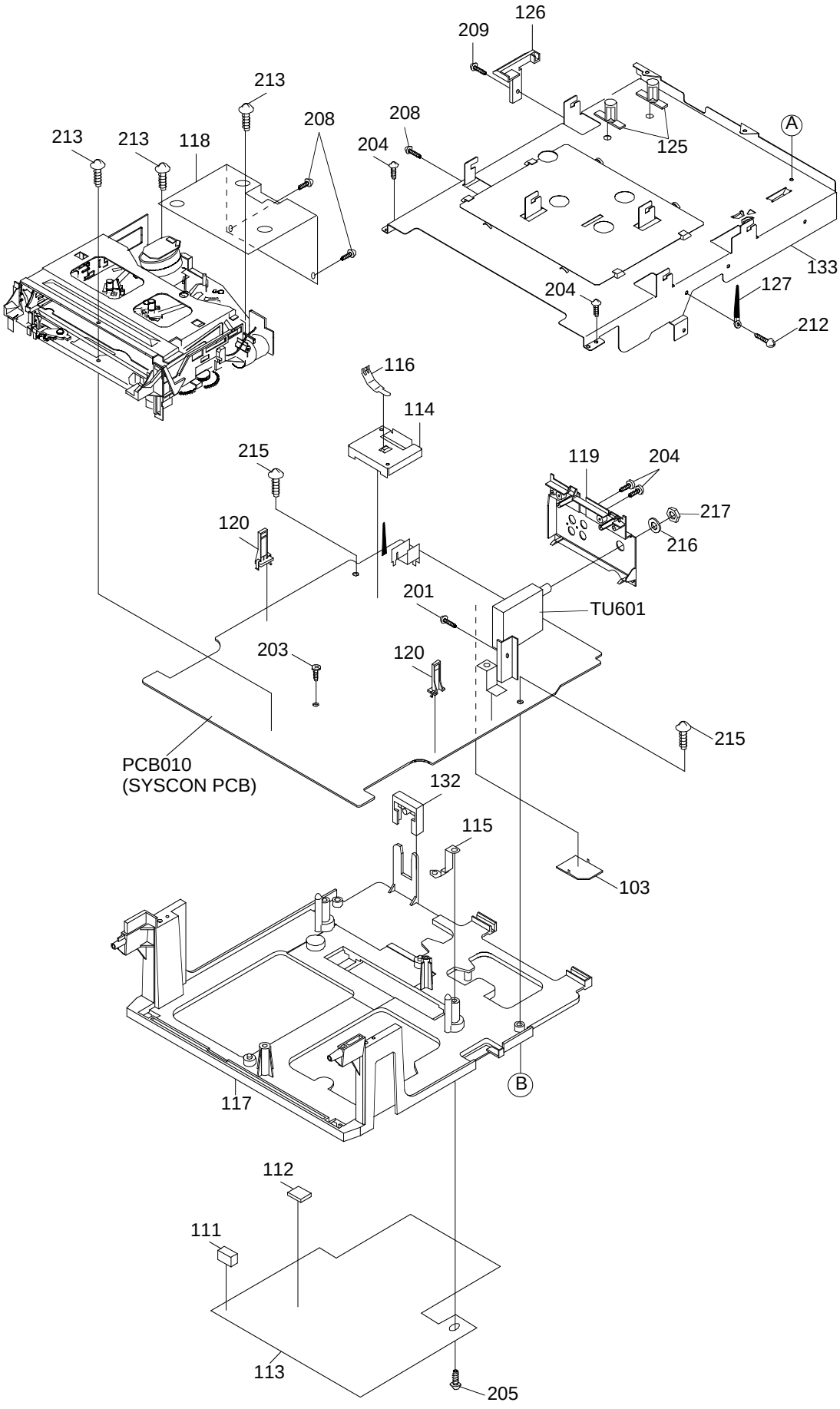
(27) 200mV 2ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

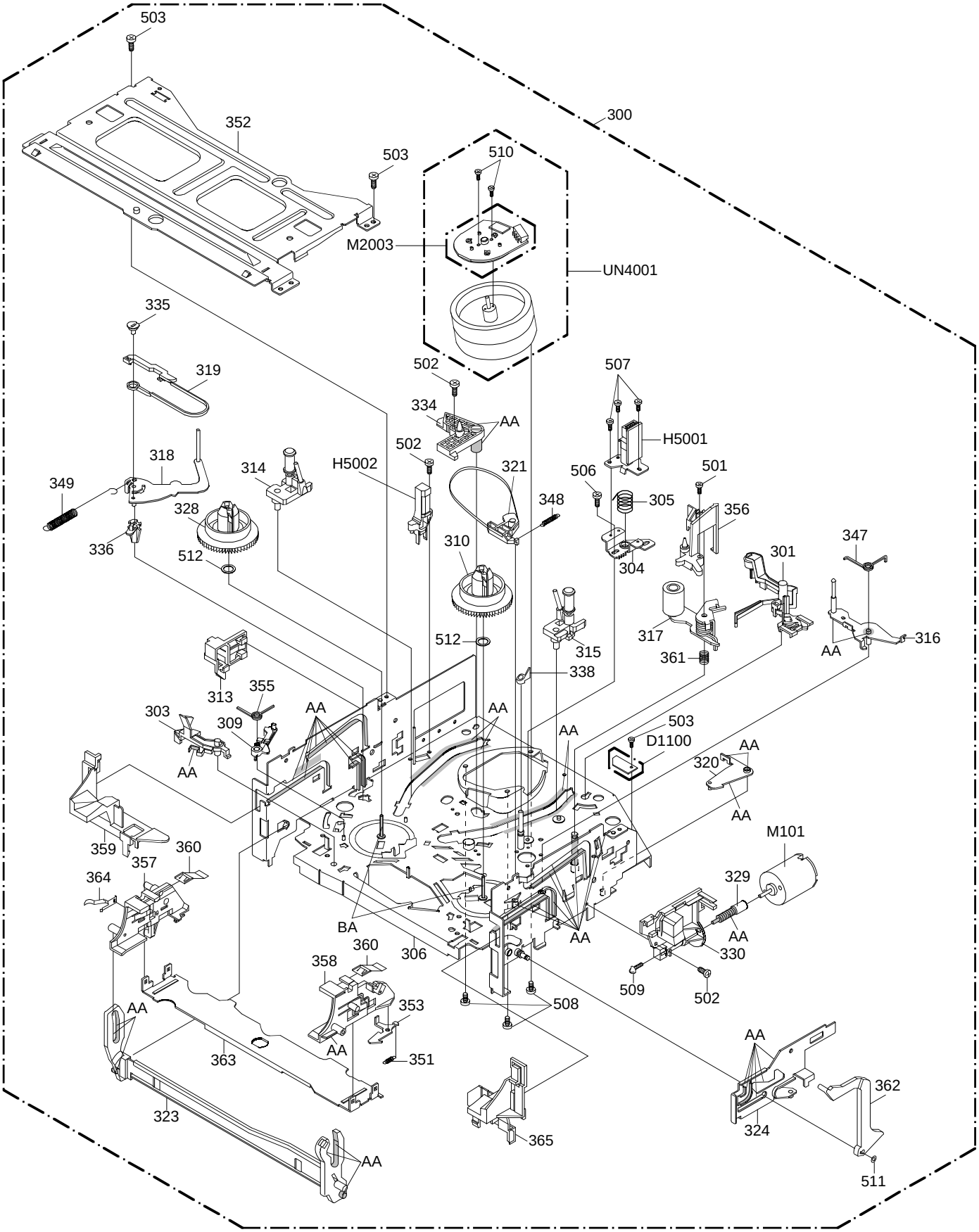
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



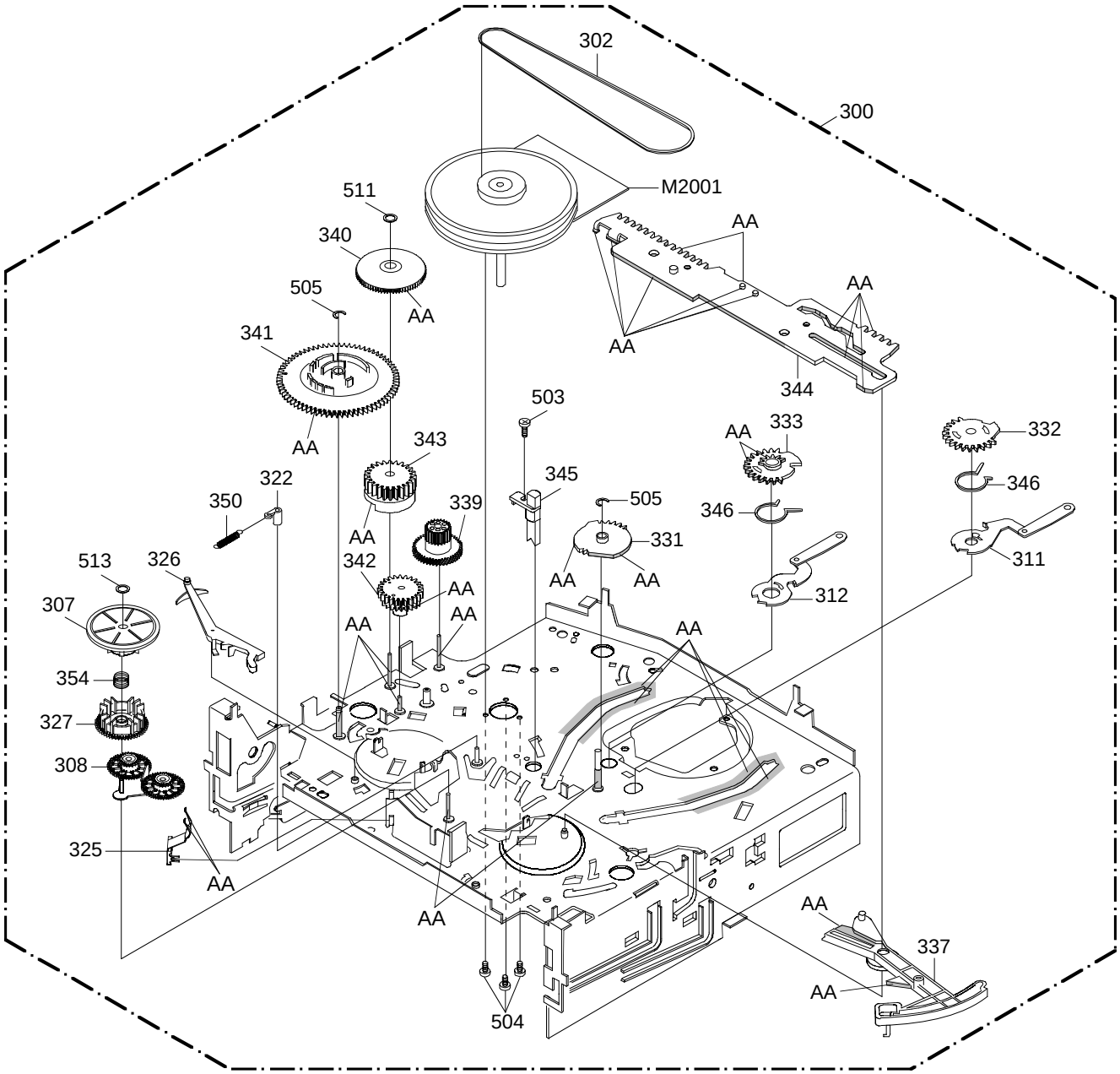
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA
OIL	BA

NOTE :Applying positions AA and BA for the grease or oil are displayed for this section.
Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	BZ610254	A59705I720	CABINET,FRONT ASSY	
102	BZ710468	701WPJB369	CABINET,FRONT	
103	BZ710282	752WSAA033	SHIELD,IC	
104	BZ710469	712WPJB038	FLAP	
105	BZ710010	743WKA0032	SPRING,FLAP	
106	BZ710288	713WPA0124	GUIDE,REMOCON	
107	BZ710287	713WPA0123	GLASS,LED	
108	BZ710471	735WPJA403	BUTTON,FRAME	
109	BZ710470	738WPAA013	BUTTON,BASE	
111	BZ710251	800WFA0037	CUSHION	15x5xT=6
112	BZ710252	800WFA0038	CUSHION	10x10xT=2
113	BZ710248	752WSAA028	SHIELD,BOTTOM	
114	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP	
115	BZ710235	753WSA0120	PLATE,BOTTOM-EARTH	
116	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP	
117	BZ710292	761WPA0202	HOLDER,DECK	
118	BZ710283	752WSAA027	SHIELD,COVER DECK	
119	BZ710280	771WPA0255	PLATE,JACK	
120	BZ710178	85OP700036	HOLDER,EOT SENSOR	
121	BZ710467	753WSA0133	SHIELD,TV MAIN PCB	
122	BZ710459	761WPA0223	HOLDER,FBT	
124	BZ710450	8141J40B84	SCREW,TAP TITE(P) GW15	4x28
125	BZ710284	890PS70100	PUSH SPACER	
126	BZ710296	761WPA0204	HOLDER,M/PCB	
127	BZ710039	8995034000	CORD CLIP UL CO.	
128	BZ710291	702WPA0728	CABINET,BACK	
131	BZ710294	741WUA0002	SPRING,EARTH	
132	BZ710281	761WPA0203	HOLDER,BUSH	
133	BZ710472	752WSAA038	PLATE,DECK SHIELD	
201	BZ710239	8109I30A04	SCREW,TAP TITE(B) WH7	3x10
202	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
203	BZ710028	8110330804	SCREW,TAP TITE(P) FLAT	3x8
204	BZ710031	8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
205	BZ710158	8110630604	SCREW,TAP TITE(P) BRAZIER	3x6
206	BZ710030	8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
207	BZ710024	810A130B04	SCREW/WASHER(A)	M3x20
208	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
209	BZ710240	8107230804	SCREW,TAP TITE(S) BIND	3x8
210	BZ710032	8110630A24	SCREW,TAP TITE(P) BRAZIER	3x12
211	BZ710337	8107930604	SCREW,CUP(S)	3x6
212	BZ710299	8107230604	SCREW,TAP TITE(S) BIND	3x6
213	BZ710034	8117140A24	SCREW,TAPPING(B0) PAN	4x12
214	BZ710035	8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
215	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
216	BZ710037	82A97A4077	WASHER	9.7x14xT0.7
217	BZ710038	8300495207	NUT (VOLUME NUT 3/8 INCH)	
---	BZ710300	792WHA0281	PACKAGE,TOP	
---	BZ710301	792WHA0282	PACKAGE,BOTTOM	
---	BZ710473	793WCDB020	GIFT BOX	
---	BZ614294	J5970501	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
300	BZ610249	A59705B420A	DECK ASSY	A59705B420A
301	BZ710073	85OA500022	AHC ASS'Y	
302	BZ710193	85OP200290	BELT,CAPSTAN (S)	
303	BZ710132	85OP900710	LEVER,REC	
304	BZ710094	85OP500083	BASE,AC HEAD	
305	BZ710112	85OP800324	SPRING,AC HEAD	
306	BZ710354	85OA000449	MAIN CHASSIS ASS'Y (3V)	
307	BZ710195	85OA200082	CLUTCH ASS'Y(S2)	
308	BZ710355	85OA200088	ARM,IDLER ASS'Y 3V	
309	BZ710197	85OP600556	ARM,SS BRAKE (S)	
310	BZ710198	85OP200292	REEL,T (S)	
311	BZ710063	85OA300061	LOADING ARM S ASS'Y	
312	BZ710064	85OA300062	LOADING ARM T ASS'Y	
313	BZ710216	85OP900714	COVER,SENSOR L3	
314	BZ710356	85OA400220	INCLINED BASE S UNIT 3V	
315	BZ710357	85OA400221	INCLINED BASE T UNIT 3V	
316	BZ710200	85OA400199	P5-3 ARM ASS'Y(S)	
317	BZ710072	85OA400205	PINCH ROLLER BLOCK	
318	BZ710065	85OA400175	TENSION ARM ASS'Y	
319	BZ710374	85OA400216	TENSION BAND ASS'Y 3V	
320	BZ710067	85OA400178	PINCH ROLLER LEVER ASS'Y	
321	BZ710375	85OA600197	BRAKE T ASS'Y 3V	
322	BZ710359	85OP500087	HOLDER,SPRING(SV)	
323	BZ710360	85OA900223	LINK UNIT(SV)	
324	BZ710361	85OP900716	LEVER,LINK(SV)	
325	BZ710204	85OP200284	LEVER,CLUTCH (S)	
326	BZ710205	85OP200285	ACTUATOR,CLUTCH	
327	BZ710206	85OP200298	GEAR,COUPLING(S2)	
328	BZ710207	85OP200291	REEL,S (S)	
329	BZ710362	85OP600566	WORM(SV)	
330	BZ710465	85OP600580	BRACKET,MOTOR(4V)	
331	BZ710364	85OP300193	GEAR,MAIN LOADING	
332	BZ710087	85OP300179	GEAR,LOADING S	
333	BZ710088	85OP300180	GEAR,LOADING T	
334	BZ710365	85OP300189	HOLDER,LOADING GEAR (S-ZV)	
335	BZ710090	85OP400472	ADJUST,TENSION	
336	BZ710093	85OP400492	HOLDER,TENSION	
337	BZ710092	85OP400490	LEVER,TENSION	
338	BZ710366	85OP400520	CAP.P4	
339	BZ710097	85OP600543	GEAR,JOINT	
340	BZ710098	85OP600544	GEAR,MIDDLE	
341	BZ710367	85OP600572	CAM,MAIN(S)	
342	BZ710101	85OP600546	CAM,P5	
343	BZ710172	85OP600565	CAM,PINCH ROLLER	
344	BZ710210	85OP600561	ROD,MAIN(S)	
345	BZ710106	85OP700035	REFLECTOR,LED	
346	BZ710107	85OP800318	SPRING,LOADING GEAR	
347	BZ710211	85OP800334	SPRING,P5 (S)	
348	BZ710212	85OP800335	SPRING,BRAKE T (S)	
349	BZ710110	85OP800322	SPRING,TENSION	
350	BZ710213	85OP800336	SPRING,CAP BRAKE (S)	
351	BZ710118	85OP800342	SPRING,LOCKER (S)	
352	BZ710128	85OP900695	BRACKET,TOP	
353	BZ710217	85OP900713	LOCKER,R2	
354	BZ710115	85OP800330	SPRING,RING	
355	BZ710214	85OP800337	SPRING,SS BRAKE (S)	
356	BZ710119	85OP900680	OPENER,CASS	
357	BZ710368	85OP900722	CASS SIDE L(SV)	
358	BZ710369	85OP900723	CASS SIDE R(SV)	
359	BZ710314	85OP900728	TAPE GUIDE L(P,R)	
360	BZ710127	85OP900694	SPRING,PACK	
361	BZ710117	85OP800341	SPRING,P/R ARM	
362	BZ710123	85OP900688	LEVER,FLAP	
363	BZ710370	85OP900717	CASS HOLDER(SV)	
364	BZ710129	85OP900696	SPRING,CASS EARTH	
365	BZ710315	85OP900729	TAPE GUIDE R	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
501	BZ710048	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
502	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
503	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
504	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
505	BZ710058	83ETW30000	E-RING	3.0
506	BZ710371	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
507	BZ710046	8102120604	SCREW,PAN	M2x6
508	BZ710219	810A126504	SCREW/WASHER(A)	M2.6x5
509	BZ710241	810A130504	SCREW/WASHER(A)	M3x5
510	BZ710051	810A123504	SEMS A	M2.3x5.0
511	BZ710055	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
512	BZ710218	82Q2647C5N	POLYSLIDER WASHER	2.6x4.7xT0.25
513	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
CD1502	BZ614293	122Y021901	CORD JUMPER	2Y021901
D1100	BZ410060	DAK0000170	DEW SENSORCW/AL,PLATE	HDP-05-26
H5001	BZ710040	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
H5002	BZ710041	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
M101	BZ710044	1596P78001	MOTOR (LOADING)	MXN13FB11H
⚠ M2001	BZ710464	1510S98033	CAPSTAN DD UNIT	F2QVB01
⚠ M2003	BZ710373	1589S11014	MICRO MOTOR	I2OAL03
⚠ UN4001	BZ610250	A4E104A500	CYLINDER UNIT ASS'Y	A4E104A500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description
		RESISTORS		
R363	BZ210010	R3X28B1R2J	R,METAL	1.2 OHM 3W
⚠R439	BZ210089	R4X5T6273F	R,METAL	27K OHM 1/6W
⚠R440	BZ210090	R4X5T6822F	R,METAL	8.2K OHM 1/6W
⚠R441	BZ210091	R4X5T6104F	R,METAL	100K OHM 1/6W
⚠R443	BZ210105	R4X5T6183F	R,METAL	18K OHM 1/6W
⚠R447	BZ210021	R65582680J	R,FUSE	68 OHM 1/2W
⚠R449	BZ210018	R5X2CE682J	R,CEMENT	6.8K OHM 7W
⚠R450	BZ210093	R6558A100J	R,FUSE	10 OHM 2W
⚠R500	BZ210001	R21202275K	R,SOLID	2.7M OHM 1/2W
⚠R501	BZ210094	R5X2CD010J	R,CEMENT	1 OHM 5W
⚠R505	BZ210012	R3X28B473J	R,METAL OXIDE	47K OHM 3W
⚠R511	BZ210063	R3X181R22J	R,METAL OXIDE	0.22 OHM 1W
⚠R517	BZ210119	R002T4102J	RC	1K OHM 1/4W
R522	BZ210106	R002T4823J	RC	82K OHM 1/4W
⚠R528	BZ210086	R635U4681J	R,FUSE	680 OHM 1/4W
⚠R529	BZ210201	R002T4272J	RC	2.7K OHM 1/4W
⚠R544	BZ210097	R3X18A1R5J	R,METAL OXIDE	1.5 OHM 2W
R545	BZ210098	R3X181563J	R,METAL OXIDE	56K OHM 1W
R547	BZ210028	R3X28B6R8J	R,METAL OXIDE	6.8 OHM 3W
R557	BZ210202	R002T4333J	RC	33K OHM 1/4W
⚠R802	BZ210099	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠R805	BZ210099	R3X181153J	R,METAL OXIDE	15K OHM 1W
⚠R810	BZ210099	R3X181153J	R,METAL OXIDE	15K OHM 1W
		CAPACITORS		
C354	BZ110104	E0EL02332M	CE	3300 UF 16V
C363	BZ110164	E50HT53R3M	CE	3.3 UF 50 V
C364	BZ110164	E50HT53R3M	CE	3.3 UF 50 V
C365	BZ110164	E50HT53R3M	CE	3.3 UF 50 V
C366	BZ110164	E50HT53R3M	CE	3.3 UF 50 V
C402	BZ110084	E5EZFC220M	CE	22 UF 200V
C407	BZ110053	E02LF3102M	CE	1000 UF 25V
C414	BZ110085	P21503475K	CMP	4.7 UF 250V ECQ-E
C423	BZ110086	P447F2274J	CMPP	0.27 UF 200V FHS
⚠C424	BZ210161	P4N8FJ682H	CMPP	0.0068UF 1.25KV
C425	BZ110165	C0JLYR7S2K	CC	560 PF 2KV YR
C430	BZ110123	C0JLYR713K	CC	0.001 UF 2KV YR
⚠C433	BZ110020	E5EZT8220M	CE	22 UF 100V
C502	BZ110088	C0JBB05H3K	CC	0.0022UF 500V B
C503	BZ110088	C0JBB05H3K	CC	0.0022UF 500V B
⚠C505	BZ110138	P2472B224M	CMP	0.22UF 275V PHE840
⚠C507	BZ110012	E51CGC471M	CE	470 UF 200V
⚠C510	BZ110018	E5EZT4101M	CE	100 UF 35V
C511	BZ210203	P235W1273J	CMP	0.027 UF 100V MKT
C514	BZ110095	C0JLYR7E3K	CC	0.0015UF 2KV YR
C515	BZ110091	E62FF3152M	CE	1500 UF 25V
C518	BZ110114	C0JLYR7W2K	CC	820 PF 2KV YR
C521	BZ110145	P2472B104M	CMP	0.1 UF 275V PHE840
⚠C523	BZ110082	C034F0JL3M	CC	0.0033UF 125V MX
C525	BZ110114	C0JLYR7W2K	CC	820 PF 2KV YR
C528	BZ110092	E5EZFB101M	CE	100 UF 160V
⚠C534	BZ110092	E5EZFB101M	CE	100 UF 160V
⚠C535	BZ110108	E62FT2681M	CE	680 UF 16V
⚠C536	BZ110029	E5EZT3471M	CE	470 UF 25V
⚠C537	BZ110029	E5EZT3471M	CE	470 UF 25V
⚠C538	BZ110109	E5EZTB010M	CE	1 UF 160V
⚠C539	BZ110109	E5EZTB010M	CE	1 UF 160V
C540	BZ110092	E5EZFB101M	CE	100 UF 160V
C542	BZ110061	C0JTB0513K	CC	0.001 UF 500V B
C551	BZ110091	E62FF3152M	CE	1500 UF 25V
C801	BZ110123	C0JLYR713K	CC	0.001 UF 2KV YR
C1071	BZ110166	CQGTCH412J	CC	100 PF 50V CH
		DIODES		
D401	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D402	BZ410092	D2WXN49370	DIODE,SILICON	1N4937
⚠D408	BZ410018	D94TA27011	DIODE,ZENER	HZ27-1L TD
⚠D409	BZ410017	D94TA11B13	DIODE,ZENER	HZ11B3L TD
D411	BZ410092	D2WXN49370	DIODE,SILICON	1N4937
⚠D412	BZ410092	D2WXN49370	DIODE,SILICON	1N4937
D413	BZ410092	D2WXN49370	DIODE,SILICON	1N4937
D501	BZ410061	D97U01001B	DIODE,ZENER	MTZJ10B T-77
D502	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D503	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D504	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
D505	BZ410018	D94TA27011	DIODE,ZENER	HZ27-1L TD
D506	BZ410063	D2WTAU02A0	DIODE,SILICON	AU02A-EIC
D508	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D509	BZ410080	D2WXRU2AM0	DIODE,SILICON	RU2AM-EIC

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		DIODES		
D510	BZ410080	D2WXRU2AM0	DIODE,SILICON	RU2AM-EIC
D512	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D513	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
D515	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D516	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D517	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D518	BZ410092	D2WXN49370	DIODE,SILICON	1N4937
D519	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D520	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D521	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D522	BZ410065	D97U01601B	DIODE,ZENER	MTZJ16B T-77
D523	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D524	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D526	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D527	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D528	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D530	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D531	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
D534	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D535	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D536	BZ410062	D2WTRM11C0	DIODE,SILICON	RM11C-EIC
⚠D537	BZ410011	D28TELS2N2	DIODE,RECTIFER	10ELS2N-TA1B2
D538	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
D539	BZ410043	D2WT011E10	DIODE,SILICON	11E1-EIC
⚠D540	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D541	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D542	BZ410011	D28TELS2N2	DIODE,RECTIFER	10ELS2N-TA1B2
⚠D543	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
⚠D544	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
⚠D545	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
D546	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D547	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D548	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D550	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D551	BZ410067	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
D553	BZ410076	D2WXB290S0	DIODE,SILICON	SB290S
D601	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D602	BZ410053	D97U08R21C	DIODE,ZENER	MTZJ8.2C T-77
D605	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D608	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D611	BZ410023	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
D613	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D614	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D615	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D616	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D617	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D618	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D1003	BZ410004	0010600060	LED	SID1050CM
D1014	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D3002	BZ410077	D2WXSB1400	DIODE,SCHOTTKY	SB140-EIC
D3003	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D3004	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D3005	BZ410085	D2WXN40050	DIODE,SILICON	1N4005-EIC
D4201	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4206	BZ410034	D97U01301B	DIODE,ZENER	MTZJ13B T-77
D4209	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4210	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4211	BZ410054	0021721150	LED	SLR-342VCT32
D4212	BZ410054	0021721150	LED	SLR-342VCT32
D4213	BZ410054	0021721150	LED	SLR-342VCT32
		ICS		
IC351	BZ611001	I01DP75110	IC	AN7511
⚠IC401	BZ611025	I03TD80400	IC	LA78040
⚠IC501	BZ611041	I2BT066230	IC	STR-G6623
⚠IC504	BZ611044	IDJD076100	IC	FA7610CP
⚠IC506	BZ410088	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC601	BZ611055	I06FC61206	IC	M61206FP
IC1001	BZ611080	I56F57064A	IC	OEC7064A
IC1003	BZ611057	IC7J0311A0	IC	R3111N311A/C-TR
IC1099	BZ610248	A59705B015	IC	S-24C04BDP-LA
IC3002	BZ611054	I1KA98R050	IC	KIA78R05PI
IC4001	BZ611059	I03F3201M0	IC	LA71201M-MPB
		TRANSISTORS		
Q401	BZ510086	TPATB03003	COMPOUND TRANSISTOR	KRA102MAT
⚠Q402	BZ510052	TF2002P4M0	THYRISTOR	2P4M
Q404	BZ510078	TNATJ03003	COMPOUND TRANSISTOR	KRC111MAT

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		TRANSISTORS		
Q405	BZ510087	TCAT032070	TRANSISTOR,SILICON	KTC3207-AT
⚠Q406	BZ510036	TD30026270	TRANSISTOR,SILICON	2SD2627LS-CBC11
Q407	BZ510086	TPATB03003	COMPOUND TRANSISTOR	KRA102MAT
Q408	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q471	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
Q472	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
⚠Q501	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q503	BZ510086	TPATB03003	COMPOUND TRANSISTOR	KRA102MAT
Q504	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
⚠Q505	BZ510053	T410029030	FET	2SK2903-01MR
Q506	BZ510078	TNATJ03003	COMPOUND TRANSISTOR	KRC111MAT
Q507	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠Q508	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q509	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q511	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q512	BZ510077	TAAT012714	TRANSISTOR,SILICON	KTA1271_Y-AT
Q513	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q514	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q515	BZ510078	TNATJ03003	COMPOUND TRANSISTOR	KRC111MAT
Q518	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q601	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q602	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q804	BZ510055	TCYT034150	TRANSISTOR,SILICON	2SC3415T93-(N,P)
Q805	BZ510055	TCYT034150	TRANSISTOR,SILICON	2SC3415T93-(N,P)
Q806	BZ510055	TCYT034150	TRANSISTOR,SILICON	2SC3415T93-(N,P)
Q1002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1003	BZ410041	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1004	BZ510067	TNAAC05002	COMPOUND TRANSISTOR	KRC103RTK
Q1005	BZ410049	0002700590	PHOTO COUPLER	RPI-301
Q1008	BZ410042	0000100380	PHOTO TRANSISTOR	PNA2604M010R
Q1009	BZ410041	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1013	BZ410042	0000100380	PHOTO TRANSISTOR	PNA2604M010R
Q3003	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q3004	BZ510042	TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q3005	BZ510042	TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q3006	BZ510042	TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q3007	BZ510042	TDWT00400E	TRANSISTOR,SILICON	2SD400E
Q4001	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4002	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4003	BZ510072	TPAAC05002	COMPOUND TRANSISTOR	KRA103RTK
Q4005	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q4006	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q4007	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4009	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4010	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4011	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4012	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4203	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q4204	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q4205	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q4206	BZ510071	TNAAB05003	COMPOUND TRANSISTOR	KRC102RTK
Q4210	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4212	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
		COILS &TRANSFORMERS		
L401	BZ310004	021679472K	COIL	4.7 MH
⚠L501	BZ310099	029T000092	COIL,LINE FILTER	1R0A103F24
L503	BZ310083	021767100K	COIL	10 UH
⚠L508	BZ310096	028R090008	COIL,DEGAUSS	8R090008
L601	BZ310101	0216A61R2K	COIL	1.2 UH
L603	BZ310040	02167F470J	COIL	47 UH
L605	BZ310101	0216A61R2K	COIL	1.2 UH
L607	BZ310058	021LA6220K	COIL	22 UH
L608	BZ310041	02167F101J	COIL	100 UH
L613	BZ310136	021LA63R3K	COIL	3.3 UH
L616	BZ310124	02AHA896A1	CORE,FERRITE	W5T18.4X10X9.6
L617	BZ310124	02AHA896A1	CORE,FERRITE	W5T18.4X10X9.6
L801	BZ310041	02167F101J	COIL	100 UH
L1001	BZ310009	021LA62R2K	COIL	2.2 UH
L1002	BZ310091	021W7A220K	COIL	22 UH
L1003	BZ310142	02167H220K	COIL	22 UH
L3001	BZ310124	02AHA896A1	CORE,FERRITE	W5T18.4X10X9.6
L4001	BZ310039	02167F220J	COIL	22 UH
L4003	BZ310041	02167F101J	COIL	100 UH
L4004	BZ310039	02167F220J	COIL	22 UH
L4005	BZ310040	02167F470J	COIL	47 UH
L4006	BZ310040	02167F470J	COIL	47 UH
L4007	BZ310024	0326230038	COIL,TRAP	2623003

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		COILS &TRANSFORMERS		
L4201	BZ310042	021LA6101K	COIL	100 UH
L4205	BZ310041	02167F101J	COIL	100 UH
T401	BZ310080	03305Y0018	TRANS,HORIZONTAL DRIVE	305Y001
⚠T501	BZ310086	0481290594	TRANSFORMER,SWITCHIN	G 81290594
⚠T502	BZ310087	0481290564	TRANSFORMER,SWITCHIN	G 81290564
T4001	BZ310114	031626009R	COIL,BIAS OSC	1626009
		JACKS		
J351	BZ614144	0602131011	HEADPHONE JACK	HSJ2000-01-010
⚠J352	BZ614144	0602131011	HEADPHONE JACK	HSJ2000-01-010
J503	BZ614145	0602602006	JACK,DC	HEC0824-010010
⚠J801	BZ614004	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
J4201	BZ614167	060Q401050	RCA JACK	AV2-20D-2
J4202	BZ614167	060Q401050	RCA JACK	AV2-20D-2
J4204	BZ614147	060G421017	RCA JACK	HTJ-032-05AW
J4205	BZ614146	060G421016	RCA JACK	HTJ-032-05AY
		SWITCHES		
SW1001	BZ612002	0508221001	SWITCH (LEAF)	SPVF130100
SW4202	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4203	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4204	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4205	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4206	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4207	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4208	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4209	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4210	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
SW4211	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS		
VR402	BZ210194	V1263H3BT7	VOLUME,SEMI FIXED	RH0683CJ3R
VR501	BZ210128	V1163H3BTC	VOLUME,SEMI FIXED	EVNCYAA03BE3
VR502	BZ210068	V1163Q3BTC	VOLUME,SEMI FIXED	EVNCYAA03BQ3
		P.C.BOARD ASSEMBLIES		
PCB010	BZ610251	A59705I010	PCB ASS'Y	VMA222A
PCB070	BZ610252	A59705I070	PCB ASS'Y	TMX467A
PCB110	BZ610253	A59705I110	PCB ASS'Y	TCX326A
		MISCELLANEOUS		
⚠ANT001	BZ614149	125C108027	ANTENNA ROD	T4-216BNK-BK
B302	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B501	BZ310130	024HT03564	CORE,BEADS	W4BRH3.5X6X1
B502	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B503	BZ310130	024HT03564	CORE,BEADS	W4BRH3.5X6X1
B504	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B505	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B507	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B508	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B602	BZ310130	024HT03564	CORE,BEADS	W4BRH3.5X6X1
CD351	BZ614150	06CH12444A	CORD,CONNECTOR	CH12444A
⚠CD501	BZ614053	120R614909	CORD,AC	0R614909
CD503	BZ614133	069X620040	CONNECTOR	JM-2BK-61
⚠CD504	BZ614196	121B164101	CORD,CAR BATTERY	SI-PC107-67
CD801	BZ614175	06CU82039A	CORD,CONNECTOR	SM1098-009-1A
CD803	BZ614151	122E042705	CORD,JUMPER	2E042705
CD810	BZ614152	06CH28113A	CORD,CONNECTOR	CH28113A
CD850	BZ614153	06CH25095A	CORD,CONNECTOR	CH25095A
CD853	BZ614288	06CH014301	CORD,CONNECTOR	CH014301
CF601	BZ613014	1022T45R72	FILTER,SAW	SAF45MFY220ZR
CF603	BZ613015	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
CF604	BZ613016	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5
CP353	BZ614019	069X120249	CONNECTOR PCB SIDE	B2B-EH-A
⚠CP401	BZ614154	069X440029	CONNECTOR PCB SIDE	B04B-DVS
CP403	BZ614283	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP404	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100
⚠CP501	BZ614176	069S320419	CONNECTOR PCB SIDE	A3963WV2-3PD
⚠CP502	BZ614105	069E280129	CONNECTOR PCB SIDE	8283_0812_00_000
CP503	BZ614137	069X620030	CONNECTOR PCB SIDE	RE-H022TD-1130
CP601	BZ614168	06CH2B026A	CORD,CONNECTOR	CH2B026A
CP602	BZ614039	069E270129	CONNECTOR PCB SIDE	8283_0712_00_000
CP801	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP820	BZ614048	069E2B0129	CONNECTOR PCB SIDE	8283_1112_00_000
CP850	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000
CP1001	BZ614156	069R220021	CONNECTOR PCB SIDE	52287-0211
CP1002	BZ614289	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP4001	BZ614054	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4002	BZ614050	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4003	BZ614009	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP803A	BZ614157	067R104019	WIRE HOLDER	51052-0400
CP803B	BZ614157	067R104019	WIRE HOLDER	51052-0400

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		MISCELLANEOUS		
CUS011	BZ710279	800WFAA006	CUSHION A	
CUS012	BZ710149	800WFAA008	CUSHION C	
CUS013	BZ710148	800WFAA007	CUSHION B	
⚠DY801	BZ310088	0271080901	DY	KDY3CFB23M
EL001	BZ614043	124116281A	EYE LET	XRY16X28BD
EL002	BZ614044	124120301A	EYE LET	XRY20X30BD
⚠F501	BZ614177	081PC05004	FUSE	51MS050LCC
⚠FB401	BZ310089	043210012R	TRANSFORMER,FLYBACK	3210012R
FH501	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC
⚠ICP502	BZ614277	0835C10003	MICRO FUSE	20N_10KFS
OS4201	BZ614290	077Q037003	REMOTE RECEIVER	PIC-37143SY
⚠RY503	BZ612011	0560V10118	RELAY	ALKS325
⚠SP351	BZ614291	070W132003	SPEAKER	NS-300RW
TM101	BZ614201	076N0DQ050	TRANSMITTER	VC-L2B
TU601	BZ610125	0145K00055	TUNER,VHF-UHF	TECC1040PG32D
⚠V801	BZ614161	09D1090401	CRT W/O DY	A22JWG098X
X602	BZ613004	100CT3R505	CRYSTAL	HC-49/C
X1001	BZ613002	100CT01207	CRYSTAL	HC-49/U-S
X1002	BZ613006	100DA32R01	CRYSTAL	DT-26
X4001	BZ613023	100CT3R508	CRYSTAL	HC-49/U

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

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